

40, feet for ©
Only 50p.

POPULAR Computing WEEKLY

11-17 December 1986

Vol 5 No 50

MikroGen sells out to Creative Sparks

Full story - p4

NEWS DESK

Ocean in transatlantic
link with Mindscape?

Atari beefs up software
support service

Problems with Plus 2
screen editor



THIS WEEK'S REVIEWS

Microdeal's Karate Kid II (above)
- martial arts on the Atari ST

Star Glider on Amstrad CPCs

Gremlin's Footballer of the Year

Atari returns to its roots: the
7800 games console (right)





sinclair

MONSTER MEM

GET YOUR HANDS ON THE NEW SINCLAIR 128K +2. BEFORE EVERYBODY ELSE DOES.



The new 128K ZX Spectrum +2 is more than just a monster memory.

It's the ultimate family computer.

With a built-in datacorder for easier loading, superb graphics capability, two joystick ports, a proper typewriter keyboard and more games available than you can shake a joystick at (well over 1000 software titles, in fact).

Better get your hands on the new 128K ZX Spectrum +2 soon.

Before they do.

£149

ORRY·MONSTER VALUE

Available from: Allders, Boots, Clydesdale, Comet, Connect, Co-op, Currys, Dixons, Electric Supreme, Laskys, John Lewis, John Menzies, Power City, Rumbelows, Ultimate, WH Smith, Wigfalls, and good independent stores.

We recommend Sinclair Quality Control Software.

To: Sinclair, P.O. Box 462, Brentwood, Essex C14 4EF.
Please send me more information about the Sinclair 128K ZX Spectrum +2.

Name _____

Address _____

sinclair

STIMULATION

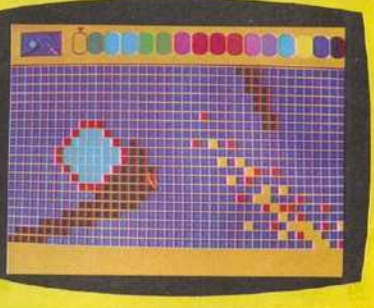
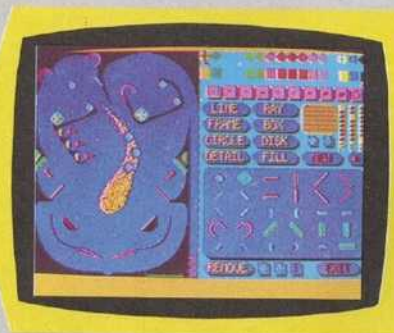
FROM THE WORLDS LARGEST **ST** PUBLISHERS

KARATE KID PART II - THE COMPUTER GAME.
This is not just another Karate game. This is the game of the film. Guide Daniel through fight after fight against ever more powerful adversaries. Then face the evil Ghozen himself in the Castle of King Shohashi, where you must discover the secret of the drum - or die! But the fighting isn't tall. Catch flies with chopsticks and break ice with your bare hand in full-size, animated graphic screens. Daniel LaRusso faced the challenge. The boy became a man. The man became a hero. What will you do? AVAILABLE LATE NOVEMBER - £24.95* colour only. **STUPENDOUS**



SHUTTLE II STAGGERING
A whole Shuttle mission experience from your armchair at home. It's the 1980's and a new look Shuttle can take off from any location and fly with the minimum of controls. Are you the next Shuttle II Commander? First take the role of Mission Controller, deciding the launch and landing positions and timings. Then take the seat of Flight Commander. . . 5, 4, 3, 2, 1 ignition on . . . liftoff, now take Shuttle II into orbit ejecting the external tanks. Now on to the Satellite that needs retrieving. On with your jet pack and bring it back into the cargo bay. Now take Shuttle II down, flying through an s-turn - can you stop Shuttle II burning up? Once back into the atmosphere glide gently down until the runway appears in view. Can you land Shuttle II without ploughing it 20 feet down into the runway? Does your score get you into the ratings as one of the worlds best Shuttle II flyers? Find out now by playing the ultimate simulation game . . . Shuttle II. AVAILABLE NOVEMBER - £24.95* colour only.

PINBALL FACTORY
PINBALL comes to life with this new arcade game. PINBALL has never been so realistic or so creative. First join the staff of the Pinball Factory - take an empty play area and design the background graphics choosing colours that the ball won't bounce off - the art package will let you design each screen pixel if you want that sort of definition. Next design your own playing board with 30 different bumpers and ball traps to position it's no easy task. Now test the game and change the design to improve the play, are you satisfied with the play area? then switch to the Logo design department, here you can design your own logo with the full art package included in the program. All finished? not yet! set the scoring, gravity, ball speed and elasticity then play the best game of Pinball you've ever played! crisp graphics, sound and fast action. Mouse controls let you 'bump' the machine just like a real pinball machine and 'Flip' the flippers. Now remember to save your customized game to disk. You can decide what's more fun - designing or playing? AVAILABLE NOW - £24.95* colour only. **STUNNING**



ELECTRONIC POOL STRIKING
A highly colourful Video Pool game (just like the arcade version), featuring a high score table, 1 or 2 player options with realistic sound effects plus rag-time music. Judge speed and distance, adjust your direction and fire your cue ball, the smooth action is so realistic you don't need to leave home for anything but the beer! Features unique Fun Game Option, try keys F2-F10 anything can happen - all we guarantee is the surprise hidden under each key. AVAILABLE NOW - £19.95* mono or colour.

TRIVIA CHALLENGE STUPEFYING
Here are nearly 4000 full length questions ranging from the Bizarre to the educational on International Sport, The Arts, Pop Music, Science and Technology and General Knowledge. This game has been designed along the lines of the successful gambling games which have taken the pubs and arcades by storm. You can even put in your own questions and answers. Here's your chance to enjoy hours of interest, days of frustration and weeks of entertainment. TRIVIA CHALLENGE - the game which allows you to be contestant, gambler and quizmaster and walk away with a crock of gold. AVAILABLE NOW - £19.95* mono or colour.

... GO ON **STIMULATE YOUR ST** TODAY



microdeal
ELECTRONIC PUBLISHING

**BOX 68
ST AUSTELL
CORNWALL
PL25 4YB**

**CREDIT CARD ORDERS BY PHONE
0726 68020**



HARDWARE ▶

15 Atari 7800

First of Atari's new launches to appear next year will be the re-

vamped games console, the 7800. In our preview, we look at its capabilities and some of the software available for it.

HELVETICA MEDIUM ITALIC
SANS SERIF SHADED
HELVETICA LIGHT ITALIC
MICROGRAMMA EXTENDED
HELVETICA (LARGE)
BODONI (LARGE)

◀ SOFTWARE

17 PCW Fonts

Dissatisfied with the look of PCW printouts? David Wallin compares

four font programs, each giving you a number of typefaces with which to print your documents.

GAMES ▶

18 Adventure Corner

19 Adventure Help

20 Arcade Action

Lots of help with *Strike Force Cobra*, plus this week's Top Twenty.

23 Karate Kid II

Is this the game of the film or the film itself? Difficult to tell with the superb



graphics in Microdeal's new ST game. See for yourselves in full colour.

24 Reviews

Wargaming with Rainbird's *Tracker*, a game of two halves with Gremlin's *Footballer of the Year*, bouncing in space with *Orbix the Terrorball* from Domark - a varied selection to get your teeth into this week.

◀ PROGRAMMING

29 Spectrum

A neat error trapping routine brought to you by J Collins.

29 Amstrad CPC

The second and final part of Sembler.

30 QL

Format your printouts with the aid of this program.

30 BBC

Scroll through your memory, editing at will - from Mark Gidley.

31 Commodore

Fast loading with Astro Load.

36 Bytes and Pieces

39 Peek and Poke

REGULARS ▶

6 News Desk

Atari bids to expand software support.

12 Letters, Chess

40 Communications

David Wallin looks at the advantages

of electronic mail over the conventional post.

43 Chess

Martin Bryant's computer chess update discusses the advanced features of today's chess programs.

45 Soundcheck

More musical offerings for the ST, plus EMS from Gremlin Graphics for the Amstrad.

51 New Releases

54 Ziggurat, Hackers

Editor Christina Erskine News editor John Lettice Features editor John Cook Technical editor Duncan Evans Production editor Michelle Beauchamp Supplements editor Christopher Jenkins Supplements designer Barbara Hajek Advertisement and Promotions manager Simon Langston Assistant advertisement manager David Osen Advertisement executives Jon Beales, Rodney Woodley Classified executive Susannah King Editorial secretary Annmarie O'Dwyer Administration Geraldine Smyth Managing editor Peter Worlock Publishing director Jenny Ireland. Published by Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 Fax 01-439 0681 Typeset by Magazine Typesetters, 6 Parnell Court, East Portway, Andover, Hampshire. Printed by McCorquodale Magazines, Andover, Hampshire. Distributed by S M Distribution, London SW9, Tel 01-274 8611, Telex 261643. © Sunshine Publications Ltd 1986. ISSN 0265-0509

Popular Computing Weekly. Tel: 01-437 4343.

ABC

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here - so please do not be tempted. We cannot guarantee to return your programs - so please do not send your only copy. **Accuracy** Popular Computing Weekly cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

MikroGen is sold to distributor

MIKROGEN has been bought out by Creative Sparks Distribution for a sum which, although undisclosed, is substantial enough to make MikroGen managing director Mike Meek "very happy".

The Bracknell-based software house was one of the longest serving independent labels in the business, but is known to have been looking at ways to expand for the past year or so. The first option floated was a budget label, which didn't get off the ground, but Meek reveals that he's more recently been looking at tie-ins with other companies.

"We've got an operation that'll be very much better if we go with other people in the market." He claims that neither company made the first move, but that the deal arose from "various discus-

sions" about other matters he'd held with CSD managing director Henry Kitchen.

Meek also concedes that he'd been talking to other companies "although they weren't in this country," and he says that there was no urgency in the company getting more backing.

MikroGen will continue under the same management, the main change, according to Meek, being that it should be able to produce more products.

The takeover of MikroGen is just the latest in a series of expansion moves CSD has made since it was the subject of a management buyout last year.

The company now has a presence in book publishing, serious software, training and support, distribution and games software.



PC: Passed its exams

PC passes Poly test

AMSTRAD is claiming further evidence of its PC's reliability after 16 of the machines survived a month at Leicester Poly in what Amstrad describes as one of the PC's "toughest assignments yet".

The machines are claimed to have been running 12

hours a day, five days a week, both individually and networked, with no serious problems.

"If they continue to be so reliable and the price remains roughly the same, we'll certainly be buying more," said a Polytechnic spokesman.

Fraud over games

SOFTWARE buyers have been victims of another bogus mail order company.

Johnson Enterprises, operating from an address in Stoke-on-Trent, is now the subject of a fraud inquiry by Stoke CID.

A CID spokesman said that it appeared that there had been no software for sale. The company had simply taken customers' money with no intention of fulfilling the orders.

The premises in Stoke were an accommodation address, and the person responsible could be from anywhere in the country, the spokesman said.

Anyone who has lost money through dealing with Johnson Enterprises should report the matter to their local police station and ask them to contact the investigating officer at the County Police Office,

Sutherland Road, Longton, Stoke-on-Trent.

● *Popular Computing Weekly* would like to point out that there is no connection between Johnson Enterprises and Maros Computers Ltd of Market Street, Longton, Stoke-on-Trent.

Maros Computers has been very helpful in bringing to light the true state of affairs at Johnson Enterprises.

Atari bids for business

ATARI is aiming to break into the business market with its ST range, and has just signed up Merseyside IBM dealer Data Exchange as part of its campaign for next year.

The systems Atari plans to sell into business are the two and four megabyte STs, hard disc and the IBM co-processor which, according to Atari general manager Bob Gleadow, require "a new breed of

dealer," and it appears that Atari will be trying to differentiate between this hardware (which will now be available "early next year") and the current ST range.

"We plan to market them very aggressively and consequently need strong dealer support from companies like Data Exchange who are used to dealing with large corporations," says Gleadow.

Ocean in US tie-up?

THE success of British companies like Mastertronic and Firebird in selling budget software in the US has prompted US publisher Mindscape to join them with its Thunder Mountain range. The range will consist mainly of programs that have previously been published in the US and

Europe, with the first release being Ocean's Rambo.

Jon Woods of Ocean describes this as a "one-off deal," concedes that Ocean is talking to Mindscape, but won't say what these talks are about. "I don't talk until the ink is dry," he says.

Ocean is however well

placed for a tie-up with Mindscape. The British company has a substantial backlog of products that haven't so far been released in the US, and Mindscape intends to feature "strong character licences", something of a speciality of Ocean's in the new range.

Plus 2 hits problems with screen editor

PROBLEMS with the screen editor on Amstrad's new Spectrum Plus 2 are becoming apparent. The editor works fine with most listings, but the longer the listing in the computer's memory the more the editor slows down.

Effectively this means that Basic listings over around 300 lines are difficult to alter, as the editor appears to have to refer to the entire listing each time you enter a character.

So unless you wait two or three seconds between each

character you type in you'll find the machine loses most of your input.

The editor is basically a patch added on to Spectrum Basic when Sinclair launched the 128K Spectrum, so it's still possible to edit 48K listings by using the Plus 2 in 48K mode (although you'll have to remember where the keywords are).

As *Popular* went to press Amstrad said it was unaware of the problem, but said it would look at it if notified of it.

DR predicts Gem on a chip

DIGITAL Research is hailing the arrival of the Intel 82786 chip next spring as the saving of the PC standard. The IBM machine has traditionally fared badly against the likes of the Apple Macintosh because of its poor graphics handling, but the new chip, which DR says will initially be available as an upgrade card for PCs and compatibles, is set to change that.

The 82786 contains an internal graphic processor subsystem and a display proces-

sor as well as a dynamic video Ram memory controller. DR is launching Gem 786 to take partial advantage of the new chip by running Gem faster, but the company predicts that graphic systems like Gem will be built into the new chip in the near future.

This plus the new chip will allow PCs to run graphics systems faster, and to use far higher resolution monitors for the likes of design and desktop publishing applications.



Genlock now showing

Video on Amiga

COMMODORE is now selling its Amiga Pal Genlock system, which allows the Amiga's graphics to be mixed with external Pal video sources.

This allows subtitles to be added to videos, or computer graphics to be used against a background of a video image. The device retails for £430.

Software Hotlines

Do you remember that digitised dalliance *Samantha Fox's Strip Poker*? Silly, wasn't it - but strange enough, there are still people out there who think there is money to be made out of pouting pixels. It is only to point out the absurdity of the thing that we feel forced to mention a couple of programs by **Brilliant Software** which bring an entirely new meaning to the category utility. One is a selection of digitised pictures named *Miss All Nude America*, the other a similar classic named *Girls They Want To Have Fun*.

Any argument about the ethics of such software is largely irrelevant here, but as a consumer magazine we feel obliged to point out that if anyone wants to look at pictures of naked women or men, full colour, high resolution photographic images can be easily obtained from any newsagent at considerably less cost than the £9.50 the tape will set you back. Sex and computing do not mix - be warned - many have the scars to prove it.

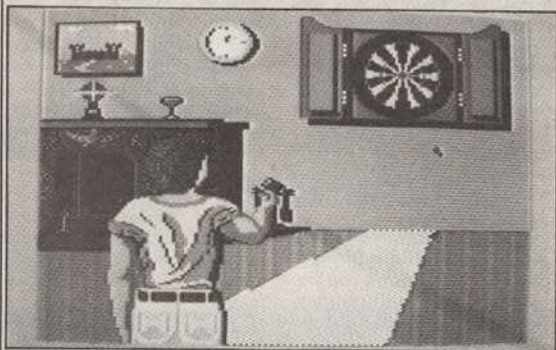
I think I feel an apology coming on - attention please. Last week I exclusively revealed the existence of *L'Affaire Simon* from **Info-games**, the first computer game ever to open with a man getting his head shot off. Now we can exclusively reveal... that it isn't called *L'Affaire Simon* at all, rather *L'Affaire*

Sidney. So if you see anyone, tell them, will you?

News from the **Argus** stable. Firstly, **Bug Byte** will soon be re-releasing two old **Virgin** classics, *Falcon Patrol II* and *Strangeloop* - both great value at £2.99 on Spectrum and Commodore. Also, **Quicksilver** has made a late entry in the coin-op conversion stakes with *Elevator Action*. Licensed from **Taito**, it involves guiding Agent Otto all the way from the top of an apartment building to his waiting getaway car - all a flimsy excuse for plenty of gratuitous violence. Vastly popular in the arcades, surprisingly there has only been one true home computer clone - *Mission Elevator* on Amstrad CPC - so it's something to look forward too in January.

In fact, the New Year is going to be busy - the list of post-Christmas releases ever grows; *Shockway Rider* and *Heroquest* to name but two. You can also add *Indoor Sports* from **Advance** to the deluge - licensed from **Mindscape** in the US (in turn programmed by **DesignStar** people - who are ex-**GameStar** personnel). This compilation will be selling for £8.95 on Spectrum and Commodore 64, £9.95 on Amstrad CPC. Spectrum and Amstrad versions will have four sports; 10-pin bowling, darts, air hockey and table tennis - alas Commodore owners will have to be content without the latter, as it's already been released full-price on its own by **US Gold**. Funny old world, isn't it?

John Cook



Indoor Sports

Discovery rights on sale

THE Opus Discovery, *de facto* disc standard for the Spectrum, appears to be up for sale, with at least two companies bidding to buy it. No-one at Opus was available for comment as *Popular* went to press, but the company is now putting a great deal of weight behind its PC compatible, and the opportunities there are likely to be greater than in the home market.

Colin Hughes of Sinclair software and add-on supplier Transform has been trying to buy the rights to the Discovery, but last week the deal seemed to have fallen through, with Opus reported-

ly more interested in selling to an overseas company.

Hughes sells a considerable amount of software for the Discovery, so, failing actually buying the rights to the device, he's interested in making sure that the drives are still available from someone. The original deal involved Opus selling Transform a supply of 1/2 inch drives along with the rights to the product, but, failing this, Hughes says he can get drives of his own, and doesn't rule out producing his own drive if he can't get the Discovery.

He still, however, has hopes that Opus will do busi-

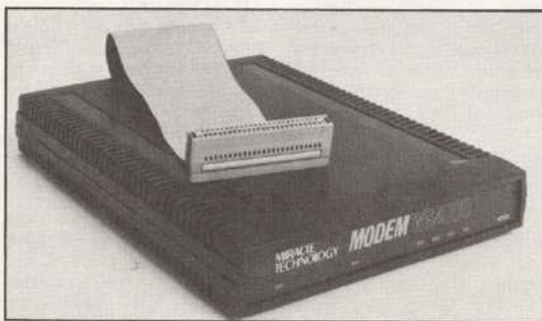


Discovery: The bidding opens

ness with him, and feels there aren't too many other serious contenders in the frame. "They offered it to a couple of people, but I heard that no-body was interested. As far

as I know I'm the only one with money on the table."

Transform specialises in serious uses for Sinclair machines, and sees the Discovery as an industry standard.



Miracle's WS4000

Miracle launches modem for the PCW

MIRACLE Technology has produced a version of its WS4000 modem for the Amstrad PCW. The WS4000 is Hayes compatible and features V21/V23 and speeds from 300 to 1200/75 baud as standard. It can be upgraded to V22/V22 bis and 1200 and 2400 baud full duplex.

The modem comes with a serial interface for the PCW built in, so you don't need to buy Amstrad's and according to Miracle can be operated with the Amstrad's built in Mail 232 software, which provides basic comms

facilities. Miracle can also supply it with bundled *ChitChat* communications software for £298.

The WS4000 is Miracle's top-of-the-range modem, is totally software controlled and features auto-dial and auto-answer.

Sage's *ChitChat* is a sophisticated communications package supporting a wide range of baud rates and including a phone directory facility.

Details from Miracle Technology, St Peters Street, Ipswich IP1 1XB (0473 216141).

Lifeline thrown to Apricot users

APRICOT users beached by the company's abandonment of its low-end machines are now being offered a cheap support service.

On-Line Support has been formed as a partnership between add-on board manufacturer Infosoft Systems and software consultancy Viking Information, and offers a range of services. Bulletin board-based support (£29.95 a year) is cheapest, and various permutations of telephone support are offered.

Details from Simon Tea (0905 778871) or Alan Flower (0272 858189).

Cheetah claims the credit

CHEETAH has pointed out that the joystick interface bundled with the Spectrum Plus 2 by Boots (see last week's issue) is a Kempston-compatible Cheetah interface, and not a Kempston as published. The Cheetah pack also includes the Cheetah 125+ joystick, which can plug into the interface or into the Plus 2 itself, allowing both Sinclair and Kempston protocols to be used.

In the same issue the price of Cheetah's Mk5 Midi keyboard was also inadvertently left out of the review - it is in fact £99.95.



Across-the-board aid

ALL SOFTWARE CHECKED BEFORE DESPATCH

MAROS COMPUTERS LTD

42 Market Street, Longton, Stoke-on-Trent, Staffs. Tel: 0782 319144

★ COMMODORE; SPECTRUM; AMSTRAD; MSX & ATARI HOME & BUSINESS SOFTWARE ★

★ OWNERS OF **COMPUTER WORLD** RETAIL CHAIN ★

★ **30% DISCOUNTS** ★

e.g. £9.95 games will be £6.95 or £7.95 games will be £5.50 etc

★ **ALL NEW GAMES COME STRAIGHT INTO STOCK** ★

★ **ANY ENQUIRIES PLEASE PHONE 0782 319144** ★

SEND S.A.E. FOR FULL LIST, STATING COMPUTER

★ NEW RELEASES . . . TITLES NOW IN STOCK! ★

| | RRP | OUR PRICE | | RRP | OUR PRICE |
|---------------------|-------|-----------|-----------------------|-------|-----------|
| AMSTRAD | | | COMMODORE | | |
| ACC | 9.95 | 6.95 | Space Harrier | 8.95 | 6.95 |
| 1942 (disk) | 14.95 | 10.50 | Space Harrier (disk) | 14.95 | 10.50 |
| Action Replay | 9.95 | 6.95 | Best of Beyond (disk) | 14.95 | 10.50 |
| Hard Ball | 9.95 | 6.95 | Tomma Hawke | 9.95 | 6.95 |
| Palitron | 9.95 | 6.95 | Tomma Hawke (disk) | 14.95 | 10.50 |
| Great Escape | 8.95 | 6.25 | Computer Hits | 9.95 | 6.95 |
| Ye Ar Kung-Fu | 8.95 | 6.25 | Kunami's Coin-Op Hits | 9.95 | 6.95 |
| Space Harrier | 8.95 | 6.25 | Scooby Doo | 9.95 | 6.95 |
| | | | Breakthru | 9.95 | 6.95 |
| SPECTRUM | | | They Sold a Million | 9.95 | 6.95 |
| Samurai | 7.95 | 5.50 | Infiltrator | 9.95 | 6.95 |
| Action Replay | 9.95 | 6.95 | Five Star Games | 9.95 | 6.95 |
| Fairlight Two | 9.95 | 6.95 | Cobra | 9.95 | 6.95 |
| Scalextric | 9.95 | 6.95 | World Games | 9.95 | 6.95 |
| Terracresta | 7.95 | 5.50 | The Great Escape | 9.95 | 6.25 |
| Top Gun | 7.95 | 5.50 | | | |
| Super Soccer | 7.95 | 5.50 | MSX | | |
| Scooby Doo | 7.95 | 5.50 | Avenger | 9.99 | 6.95 |
| They Sold a Million | 9.95 | 6.95 | | | |
| Infiltrator | 9.95 | 6.95 | ATARI | | |
| Five Star Games | 9.95 | 6.95 | Tommahawk | 9.95 | 6.95 |
| Cobra | 9.95 | 5.55 | | | |
| The Great Escape | 9.95 | 5.70 | BBC | | |
| Avenger | 9.99 | 6.95 | War | 8.95 | 6.25 |

★ THIS MONTH ONLY! . . . SPECIAL OFFERS! ★

| | RRP | OUR PRICE | | RRP | OUR PRICE | | RRP | OUR PRICE |
|-----------------------|-------|-----------|----------------------|-------|-----------|------------------------|-------|-----------|
| COMMODORE C64 | | | SPECTRUM | | | AMSTRAD | | |
| Law of the West | 9.95 | 1.99 | World Cup Football | 8.95 | 1.99 | Kung Fu Master | 9.95 | 1.99 |
| Grogs Revenge | 9.95 | 1.99 | Cyberun | 9.95 | 1.99 | Blockbusters | 9.95 | 2.99 |
| Combat Leader | 14.95 | 1.99 | Zoro | 7.95 | 1.99 | Blockbuster's Gold Run | 9.95 | 2.99 |
| Knights of the Desert | 9.95 | 1.99 | Revolution | 9.95 | 1.99 | Bull's Eye | 8.95 | 2.99 |
| Ghost Chasers | 9.95 | 1.99 | Video Pool | 7.95 | 1.99 | Battle of Britain | 9.95 | 3.99 |
| Dragon's Skull | 9.95 | 1.99 | Eureka | 8.95 | 1.99 | Daley Thompson Super | | |
| Paper Boy (in stock!) | 9.95 | 6.95 | Tas Word II | 12.95 | 2.50 | Test | 9.95 | 3.99 |
| Football Manager | 9.95 | 5.95 | B.C. Quest for Tyres | 8.95 | 2.50 | Who Dares Wins II | 9.95 | 4.50 |
| Lazy Jones | 9.95 | 2.50 | A View to a Kill | 9.95 | 2.99 | Superman | 9.95 | 2.99 |
| A View to a Kill | 10.95 | 3.50 | Superman | 9.95 | 3.50 | Football Manager | 9.95 | 5.95 |
| Superman | 9.95 | 3.50 | Knight Lore | 8.95 | 3.99 | Alien B | 9.95 | 1.99 |
| Solo Flight | 9.95 | 2.99 | Underworld | 8.95 | 3.99 | Bruce Lee | 9.95 | 1.99 |
| Ghost Busters | 9.95 | 2.99 | Tau Ceti | 9.95 | 3.99 | ATARI | | |
| Dam Busters | 9.95 | 3.50 | Dam Busters | 11.95 | 4.99 | Drelbs | 9.95 | 1.99 |
| P.S.I. Warrior | 9.95 | 2.50 | International Karate | 9.95 | 4.99 | Fort Apocalypse | 9.95 | 1.99 |
| Spitfire Ace | 9.95 | 3.50 | Ghostbusters | 9.95 | 5.50 | Football Manager | 9.95 | 5.95 |
| Goonies | 9.95 | 3.50 | Football Manager | 9.95 | 5.95 | MSX | | |
| Super Huey | 9.95 | 4.50 | Spy Hunter | 8.95 | 3.50 | Gun Fight | 9.95 | 1.99 |
| Elite (disc) | 14.95 | 6.50 | The Artist | 9.95 | 3.50 | All MSX cartridges | 15.95 | 10.99 |
| Theatre Europe (disc) | 14.95 | 5.95 | Arcade Hall of Fame | 9.95 | 5.50 | | | |
| Easy Script (disc) | 74.95 | 9.50 | Beach Head II | 9.95 | 5.95 | | | |
| Easy Spell (disc) | 59.95 | 9.50 | Aliens | 9.99 | 6.95 | | | |
| Judge Dredd | 9.95 | 6.95 | | | | | | |

HEAD CLEANERS 50p WITH ANY PURCHASE, WHILE STOCKS LAST
ALL ORDERS RECEIVED BEFORE 17th DECEMBER WILL BE DELIVERED BEFORE CHRISTMAS

PRICES INCLUDE P&P. OVERSEAS ORDERS ADD 75p POSTAGE
 CHEQUES OR POSTAL ORDERS MADE PAYABLE TO MAROS COMPUTERS LTD
 CREDIT CARD PHONE ORDERS WELCOME

Atari plans a push on software

ATARI is planning a major push to increase the amount of software available for its machines in the New Year. According to Roland Whitehouse, recently appointed marketing support manager (software), at Atari, much

ing titles, "if we feel there's a gap in the market."

As far as the ST is concerned the bandwagon is already rolling, but the 8-bit machines and the new 7800 are still at the discussion phase. "What we've got to

development on the 7800 than its rivals. Sega is maintaining strict control on who gets a licence to produce for its console and, through Ariolasoft, on what gets published. Atari, on the other hand, will be allowing software houses to develop and market cartridges in the same way as standard computer software is produced - no licence and no publisher to veto product.

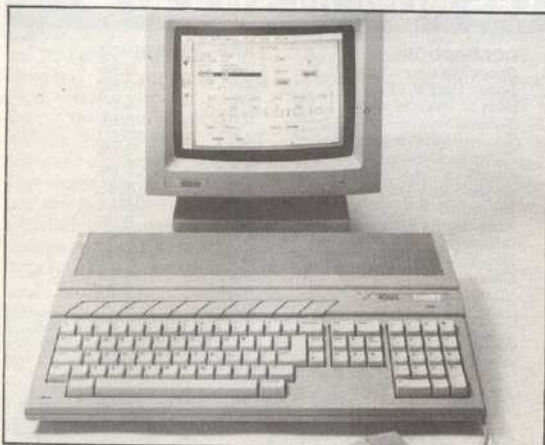
This should allow software houses to sell Atari cartridges cheaper, and should speed development of software for the machine.

Printer shows more Star quality

STAR has launched the NX-15, a wide carriage replacement for its SG-15. It includes tractor and friction feed as standard along with an automatic single sheet feeder. It runs at 120cps in draft mode and 30cps in NLQ.

The new machine has a full-featured front control panel that allows typestyle, draft or NLQ, print pitch, form length and paper control to be altered without recourse to the dip switches. It uses cartridge interfaces, so can be reconfigured to work with different computers. It costs £389.

Details from Star Micronics, Craven House, 40 Uxbridge Road, Ealing, London W5 2BS (01-840 1800).



ST: Bandwagon rolling

of the task will involve "seeing how we can stimulate (development) activity."

This will mean liaising with developers and publicising their products, but Whitehouse doesn't rule out Atari itself developing and publish-

do is convince people that the 8-bit range and the VCS range are here to stay."

He claims that software houses are currently showing interest in both these, and reveals that Atari will be taking a more liberal approach

Mirage bites back

MIRAGE Microcomputers, which was barred from the last Amstrad Computer Show because its Imager could be used for piracy, has reached an "amicable arrangement" with Amstrad and the show organiser Database Exhibitions.

The new Mirage Imager III will transfer tape software to disc but serialises the result, so copied software can only be run if the original imager is present.

Rival company Romantic Robot modified its copier in

the same way in order to gain admission to the previous Amstrad show.

According to Mirage director Derek Robinson the company's intention to sue Database over its banning from that show was expressed in "a heated moment", and the two have now resolved their differences.

Mirage's Imager III now has the approval of both Amstrad and the Amstrad User Club, and Robinson describes this as "part of the amicable arrangement."

Footnotes

TEN days after everyone in the world knows already, Commodore announces that the price of the Amiga is to be kept under £1,000 (£1,170 for those foolish people who have to pay Vat) for December. But what does it say here? The price is being kept down "to satisfy the insatiable demand shown over the last four weeks."

Normally you satisfy insatiable demand for a machine by building more of them rather than cutting the price. It could of course be that the people have been insatiably demanding that

Commodore cut the price to a level they can afford...

Meanwhile in the 'Oh what a Whopper' department, Commodore UK managing director, Chris Kaday, says: "One of the secrets to continued success (sic) is don't change the formula, so my advice is to buy now, as there are no guarantees as to what will happen with the offer in January." So the big price cut's not till February, Chris?

Over at Moss Bros, Domark is busily perpetuating an everyday story of sexual stereotypes. "If Dad has to be at work early and has to leave the game you can cut him out with this choice," says the *Trivial Pursuit* manual, while you can "use this if Mum

wants to make a cup of tea." And if the Dom Dom brothers want to dress up as Palmerston and Disraeli you can just reset the machine...

They're so much more liberated about clothing in the Netherlands. Aackosoft's latest catalogue includes such gems as "Sexy Sue" dodging the flashers and Red Lights of Amsterdam.

But the really risqué title is *Star Wars*, the entry for which begins "Long ago, in a galaxy far, far away..." No, Aackosoft doesn't have a licence for *Star Wars* and yes, Lucasfilm (which owns it) and Activision (which wants to buy it) are waxing exceedingly interested in the Dutch outfit's affairs...



Return of Victorian valets

Spectravideo's joystick bundle

SPECTRAVIDEO intends to corrupt hard-working PCW owners with a bundle of Quickshot 2 joystick, interface and *Tomahawk* helicopter simulator for £29.95. As *Tomahawk* on its own costs £19.95 this represents something of a bargain, although very little PCW software uses a joystick.

Details from Spectravideo, 165 Garth Road, Morden, Surrey SM4 4LH (01-330 0101).

Arnor launches BCPL for Amstrad

ARNOR has released a version of its implementation of BCPL for the Amstrad CPC and PCW machines. The language, which was used to write Arnor's *Protext*, comes on 3 inch disc in both CP/M and AMSDOS formats, and is also available for the 464/664 in Rom form.

It compiles to Z80 machine code and programs produced with it will therefore run independently of the language. Arnor's BCPL is a full implementation with comprehensive I/O libraries, including sound and graphics, and includes examples such as a space invaders game and a full-screen text editor. It costs £39.95.

Drawing Board enhancements

CULTON Sales and Services has added pattern fill and area

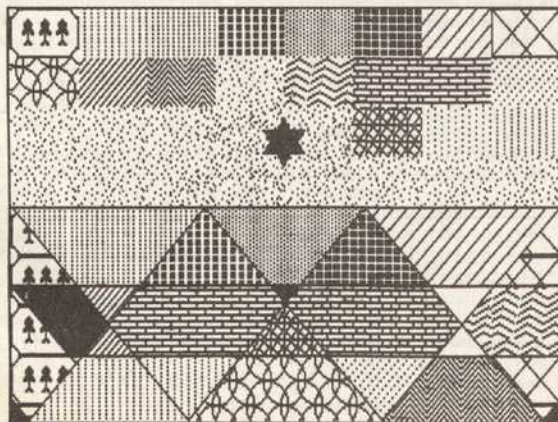


measuring routines to its *Drawing Board* program. The fill routine allows hatching, shading, gridding and tiling of selected areas of a drawing, with the pattern being selected from a suite of over 30 held in memory at any one time.

Patterns can be created in sizes from 8 x 1 to 40 x 24 pixels, the area measuring facility can be used to count the number of elements in a pattern used to fill an area. Bricks used to fill a wall can be estimated, for example.

The *64 Drawing Board* is £34 on disc, and will shortly be available in cartridge version for the 128 at £57.60.

Details from Culton Sales and Services, 34 Mount Street, Dorking, Surrey (0306 885138).



BBC utility Rom revised

BBC Telesoftware has added a keyword search facility to the Ceefax teletext service. The program, which is available free, will be broadcast for downloading over the Christmas period.

Details from BBC Enterprises, Woodlands, 80 Wood Lane, London W12 0TT (01-743 5588).

Word search for Ceefax

WORD Processing, the user group/newsletter for the serious user, has launched *Pen-Friend 2*, a follow-up to its *Pen-Friend* utility Rom for *Wordwise Plus*.

The new version allows all routines to be terminated with *Escape*, which returns you to the text area, and includes an address finder. The format page option now allows headers and footers to be centred or left or right justified, and an extra star command allows you to go straight to the disc directory ready to edit a file. It costs £18.95, and older versions can be upgraded for £6.

Details from Word Processing, PO Box 67, Wolverhampton, West Midlands (0902 788207).

DIARY DATES

DECEMBER

13 December

21st ZX Microfair

Royal Horticultural hall, London SW1
Details: Premier show for the Sinclair community. Add-ons, software, bric a brac stalls

Price: £2

Organiser: Mike Johnston, 01-801 9172

JANUARY

9-11 January

6th Official Amstrad Computer Show

Novotel, Hammersmith, London W6
Details: The year kicks off with the first of an ever increasing wave of Amstrad shows. Hardware, software, the works for CPCs and PCWs, with early support for the PC to be expected

Price: £3 adult, £2 children, £1 discount for advance booking

Organiser: Database Exhibitions, 061-456 8835

FEBRUARY

17-20 February

Which Computer? Show

NEC, Birmingham
Details: Mainly business exhibitors; includes Commodore, and low-cost PC clones

Price: £5

Organiser: Cahners Exhibitions, 01-891 5051

26-28 February

The Atari Computer Show

Novotel, London W6
Details: First chance for Atari to show off the exciting new strategy it's allegedly working on.

Price: £3 adult, £2 children, £1 discount for advance booking

Organiser: Database Exhibitions, 061-456 8835

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

Thanks to readers

You could have knocked me down with a feather! In fact, you can knock me down with a pile of letters: 176, would you believe? All these are replies to my request for help in comprehending the workings of my new

QL generously presented to me by my son. (See Any helpful QL readers? in *Popular*, 13 November a couple of issues ago). Hang on! I promise to write to every one of you, but it'll take me some weeks, so don't go away.

Edward G Ogilvie
Bristol

Vexed by hex

On page 42 of *Popular*, October 16, Dr Paul Mooney's Renumber program claims to "correctly reassign all Goto, GoSub, Restore and List statements, even when reference is made to lines which do not exist or are beyond the end of the

program".

However, a bug in the Basic listing for the hex loader is caused by not resetting CS to 0 (should an error be made whilst typing in the hex codes), ie, whatever value CS has when it reached line 130, it remains in CS when returned to line 50, causing a continuous loop.

Uncharted waters

Colossus has now entered unknown territory in the Readers vs *Colossus* tournament, according to *Colossus* author Martin Bryant.

In Game Two, Martin says that *Colossus* played the first five moves from book openings but it has not taken a non-recognised line of move. He thinks that this game is now into a new area and that the Readers' team will no longer be able to research the moves in chess literature.

The latest moves in Game Two are as follows: the Readers opted for 8 d6-d1, while *Colossus*'s 'non-recognised line' in response was K g8-e7.

Game One is proceeding along more straightforward

lines. The Readers, playing Black, voted 8... h7-h6 as the best move. *Colossus* has followed with 9 K g5-f3. Full details below.

Your next move

Over to you again. Send in your suggested next moves (one for each game) to either Inter Mediates (*Popular Chess*), Freepost, Sawbridgeworth, Herts CM21 9YA (no stamp needed), or *Popular Chess*, Unit 2, The Maltings, Sawbridgeworth, Herts CM21 0PG (with a stamp). The move getting the most votes will be entered into the game. Closing date for entries is Wednesday, January 7 - later than usual, but due to *Popular* publishing a double issue next week, and the vagaries of the Christmas post, the next moves in the tournament will be published

in the January 15 issue. Bear with us!

Prizes

A British Museum reproduction chess set will go to the person suggesting the most

selected moves in each game.

Five copies of CDS's *Colossus Chess* will be awarded as runners-up prizes. It's not too late to start now, so why not send in your suggestions.

Game one

- 1 Pe2-e4 Pe7-e5
- 2 Ng1-f3 Nb8-c6
- 3 Bf1-c4 Ng8-f6
- 4 Nf3-g5 Pd7-d5
- 5 Pe4xd5 Nc6-a5
- 6 Bc4-b5+ Pc7-c6
- 7 Pd5xc6 Pb7xc6
- 8 Bb5-e2 H7-h7
- 9 Ng5-f3 ?

Game two

- 1 Pe2-e4 Pc7-5
- 2 Ng1-f3 Nb9-c6
- 3 Pd2-d4 Pc5xd4
- 4 Nf3cd4 Pe7-e5
- 5 Nd4-b5 Pa7-a6
- 6 Nb5-d6+ Bf8xd6
- 7 Qd1xd6 Qd8-f6
- 8 Dd6-d1 Ng8-e7
- 9 ?



Puzzle

Puzzle No. 237

My friend Arnold has just acquired a rather unusual striking clock. I noticed it the other day during a visit to his house. Let me describe it to you. At a quarter past the hour it goes 'ping'; at half past the hour it goes 'ping, ping'; while at a quarter to the hour it goes 'ping, ping, ping'. On the hour itself it doesn't 'ping' at all but 'bongs' from one to twelve times depending on the time.

During this visit the clock was striking just as I arrived, as indeed it was as I was leaving. In fact, during my stay it chimed a combined total of 86 'pings' and 'bongs'. If you knew the length of my visit you could work out my times of arrival and departure, but can you do it without this information?

Solution to Puzzle No. 232

Answer: Arnold's number was 4718. My first guess, 6015, had only one digit in common, the 1, and this was correctly placed. My second guess was 8174, which was 3456 too high.

Solution: The first problem is to find pairs of numbers comprising of the same four digits differently arranged, having a difference of

3456. This is done in the first FOR/NEXT loop. The subroutine at line 130 checks that the number consists of four different digits. The difference of 3456 is then added to this number, and the result is checked firstly to ensure that this number contains four different digits, and secondly that they are the same four digits as those in the original number. This is done in the subroutine at line 200.

Pairs of digits that satisfy these conditions are then printed out. This results in 37 pairs of numbers being displayed. However, from this list can be crossed off any numbers which

contain more than one digit in common with the first guess (6015), or do not have any digit in common. This leaves a short list of just seven pairs of numbers, but only one of them (4718) contains the matching digit in its correct place.

Winner of Puzzle No. 232

The winner this week is J R Hall of Farnborough, Hants who will be receiving £10.

Rules

The closing date for Puzzle 237 is December 29th. Answers on a postcard please.

```

10 DIFF=2456
20 CLS
30 FOR N=1023 TO 9876-DIFF
40 X=STR$(N):GOSUB 130
50 IF T=1 THEN 110
60 D=N-DIFF
70 X=STR$(D):GOSUB 130
80 IF T=1 THEN 110
90 GOSUB 200
100 IF T=0 THEN PRINT:N;" ";D;" ";
110 NEXT N
120 END
130 REM Digit check
140 T=0

```

```

150 FOR F=1 TO 3
160 FOR G=F+1 TO 4
170 IF MID$(X,G,F,1)=MID$(X,G,1) THEN T=1
180 NEXT F:NEXT
190 RETURN
200 REM Match digits
210 N=STR$(N):D=STR$(D)
220 C=0:T=1
230 FOR F=1 TO 4
240 FOR G=1 TO 4
250 IF MID$(N,F,1)=MID$(D,G,1) THEN C=C+1
260 NEXT G:NEXT
270 IF C=4 THEN T=0
280 RETURN

```

The problem was solved by inserting in line 30, (after line a\$:) *Let CS = 0: Go to 50.*

Having succeeded in loading the hex program, I tested its use. While the bulk of it worked correctly, the program failed to deal fully with *GoSub* and *Restore* statements.

I have no doubt there is a simple solution somewhere, but as my knowledge of machine code is very limited, I have little chance of solving it! I would welcome any advice.

Graham Hitchcock
Richmond
N Yorks

Sounding off on Soundcheck

I would like to complain about a comment made in *Soundcheck*, November 6.

In his first paragraph, Mark Jenkins said, "It's good to see some of the simpler micros being supported by powerful music software".

"Simpler micros" refers to the Atari 8-bit machines, and it totally disgusts me that these computers can be called "simple", when you consider the Spectrum, which has only one sound channel, merging colours and a very limited resource of colours. Tons of people know this, but they still buy them. Why?

Many a C64 owner has been taken back by the Atari games I have shown them, but I, however, have not been impressed by any C64 games. I was expecting to see something brilliant from the so-called superb C64, but no.

I have owned an Atari for three years and during that time, I have been persecuted and teased no end of times by my friends for the machine I bought.

Not all times were bad though. Recently I showed a Spectrum owner *International Karate*. When he heard the four channel sound music, the brilliant colour usage and multicolour non-merging graphics he was amazed. This friend now owns an Atari and has sold his Spectrum for buttons, as that's all it is worth.

Keith Starr
Luton

Revival of The Living Dead

I take exception to your article *The Living Dead* in the supplement dated November 20, in which you referred to the MSX as dead.

The MSX system was the best-selling system last Christmas. It is one of the top-selling systems in Europe and Japan, and it is the first system to interface with a camera, the Canon T90.

It has been bought by the Russians for use in their schools, even after comparing and considering many of the so-called 'living' micros.

You say the disc drive is expensive, and the true ones are (Toshiba, JVC and Sony).

However, Knights does a disc drive for £89 and the only thing it does not offer is random access filing.

MSX 2 is now available in the UK, and it offers graphics and sound that a lot of home computers can't match; I would say that MSX is far from dead.

David Haslett
Preston

We did not mean to imply that MSX - the concept - was dead. The article was a guide to buying discontinued micros at a bargain price. The original MSX specification machines are no longer manufactured for sale in the UK (dead in that sense) and can be bought very cheaply; hence their inclusion in the article.

The misery of the warranty

Regarding your news item (November 13) that Amstrad is axing one of its warranties; I don't regard this as a bad thing. In fact, I rather wish that I had had no warranty for my Amstrad.

When it broke down in January I took it back to the dealer who accepted it quite happily, as it was still under warranty. I still haven't got it back! For the first six months or so I called in about once a month, but I have now given up, as I am resigned to never seeing my machine again (un-

less I take legal action to retrieve it, which is obviously not worthwhile).

If there had been no warranty on the machine, I would have taken it to one of the repair firms which advertise in *Popular*, and would no doubt have had it back many months ago.

So I must commend Amstrad for axing one of its warranties.

Bill Frankland
London NW2



"Hello Amstrad? We've got a tough new test for your PC"

Xen take offer

Thank you for publishing my Xen Plus program for Amstrad CPC micros. I would like to point out a few mistakes in the printed article: the commands are *:HELP* not *:HELP1* and *:EMPHASIZE* not *:EMPHASISE*.

I will supply the program on tape or disc for £3.00 and £6.50 respectively. The price includes comprehensive documentation and example programs. The disc version contains separate versions of Xen and Xen Plus and also a combined version of the two which can be loaded in one go.

Simon T Goodwin

From Spectrum to QL

One of the facilities that those who graduated from Spectrum to QL find is the lack of a *SGN* function. It is an odd omission on a machine which includes so many other functions, including the *ABS* function; admittedly *SGN* can be emulated - but so can many other functions. Here is an extremely economical User Defined Function which tests the sign

of any variable passed to it and returns the appropriate value.

```
100 DEF FNsgn(variable)
110 RETURN (variable>0)-
(variable<0)
120 END DEFINE
```

M J Edwards
Gwent

Said it with flowers

Re Audiogenic in Software Hotlines, page 5, 20-26 November 1986.

I did say it with flowers, but it was too much too late...

Gary Partis
Bedlington
Northumberland

PC-Write set right

In Marcus Rowland's otherwise excellent review of public domain software for IBM-PC compatibles (November 6) there were a couple of points which weren't really fair to *PC-Write*.

Although it isn't exactly "what you see is what you get", it's pretty close.

The review said there is no on-screen display of fonts, only a marker for each control code indicating font change. In fact, fonts are normally set to be displayed in different colours (user customisable), so it's easy to see on the screen which fonts your final printed text will be in.

Also, although page breaks are not shown on screen, normally, hitting *Shift-F1* displays the prompt *F2:repage*, and hitting *F2* then has the effect of highlighting each line which will be on a page break when the file is printed.

This takes into account any page-formatting "dot" commands in the file. Sure, headers and footers aren't actually displayed on screen, but they are taken into account.

All the above comments apply to *PC-Write* version 2.4, the last version to be officially distributable in the UK as "freeware", and the last to come with a full (over 100-page) manual on disc. I thought I'd better write and put the record straight, just in case anyone was put off by these little "deficiencies" noted in Marcus's review.

John Rice
Manchester

£1.95 EACH

HOVER BOVER, ADVANCE MEGA CAMELS, SHEEP IN SPACE, ANCIPITAL, ACTIVE COMP LEARNING, WEB DIMENSION, ROCK 'N' BOLT, PASTFINDER, MASTER OF LAMPS, 'OY BIZZARRE, JUICE, SUICIDE STRIKE, DRELSB, FORT APOCALYPSE, DOUGHBOY, WORLD CUP II, MAMA LLAMA, 3D LINAR ATTACK, SUICIDE EXPRESS, KOSMIC KANGA, HEROES OF KARU, EMPIRE OF KARU, V, AUTOMATA, SPYS, DEMISE/SPY STRIKES BACK, EUREKA, CAVELON, WHIRLNUD, CHINESE JUGGLER, SILICON WARRIOR, LUNAR OUTPOST, JUMPMAN

£2.95 EACH

WHO DARES WINS, ARC PANDORA, 'Z', BOMBO, MATCH FISHING, MONTY ON THE RUN, MONTY MOLE, POTTY PIGEON, SHOOT THE RAPIDS, TONY HARTS ART MASTER, SPIRIT OF STONES, COMBAT LEADER, BEAMRIDER, DEATH STAR INTERCEPTOR, WIZARD OF WOD, QUA VADIS, ZORRO, BEACHEAD, ROCKY HORROR SHOW, DIG DUG, UP & DOWN, BOUNTY BOB STRIKES BACK, GHOST CHASER, KERMIT'S STORY MAKER, OUTLAWS, MHOTEP, CONGO BONGO, JOURNEY, CAUSES OF CHAOS, BLADE RUNNER, WILLIAM WOBBLER, BASILDON BOND, EDDIE KIDS, FLAK, GRIBBLYS DAY OUT, KNOCKOUT, JET SET WILLY, MANIC MINER, EVERYONES A WALLY, DUMMY RUN, HIGH NOON, MR WIMPY, ANDROID 2, DARK TOWER, VIEW TO KILL, FIGHTING WARRIOR, FRANK, HARVEY SMITHS SHOW/JUMPER, MOTOCROSS, MCFIBIS, GEOFF CAPES, PITSTOP, KONG STRIKES BACK, SPIDERMAN/HULK, GYROSCOPE, SPELLUNKER, DESIGNERS PENCIL, BLACKWITCH, BIC'S QUEST FOR TRES, ZAXXON, QUAKE MINUS II, TAPPER BOUNCES, STARION

£3.95 EACH

DRAGONSKULL, BRIDGE PLAYER II, PINBALL WIZARD, GROGS REVENGE, WIZARDRY, KNIGHTS OF THE DESERT, LAW OF THE WEST, FIGHT NIGHT, TIGERS IN THE SNOW, SKY FOX, BOUNDER, THING ON A SPRING, BATTLE NORMANDY, HENRYS HOUSE VOL. I, HENRYS HOUSE VOL. II, RED HAWK, SELECT 112 GAMES, ADVENTURELAND/SECRET MISSION, PRIVATE ADVENTURE WOODCO CASTLE, QUESTPROBE, WORLD SERIES BASEBALL, ZODIS, COMBAT LYNX, TERRORMELINOS, MUSIC STUDIO, CHUCKIE EGG, MUGSYS REVENGE, VIDCOM

COMMODORE TITLES

£4.95 EACH

INTERNATIONAL SOCCER, SOUTHERN BELLE, NEVER ENDING STORY, LOGO (COMMODORE), NOW GAMES COMPILATION, ADVENTURE QUEST, LORDS OF TIME, SNOW BALL, COLLOSSAL ADVENTURE

£5.95 EACH

SUMMER GAMES II, WINTER GAMES, WHITE LIGHTNING

£9.95 FOR 4

'O' LEVEL MATHS, 'O' LEVEL PHYSICS, 'O' LEVEL CHEMISTRY, 'O' LEVEL BIOLOGY

COMMODORE 64 DISCS

| | |
|---|-------|
| GALACTIC CONTROLLER | £3.95 |
| HIGH FLYER | £3.95 |
| SPIRIT OF STONES | £3.95 |
| FIGHTING WARRIOR | £4.95 |
| AZTEC CHALLENGE | £3.95 |
| WILLOW PATTERN/CHIMERA | £4.95 |
| NUMBER LEARNING IN PUZZLER, BUILDER, CHASER | £3.95 |
| THING ON A SPRING | £6.95 |
| SUPER ZAXXON | £3.95 |
| MONTY ON THE RUN | £3.95 |
| MY CHESS II | £6.95 |
| SOLD A MILLION | £7.95 |
| ARCADE EXTRAVAGANZA | £3.95 |
| ULTIMA II | £4.95 |
| REDHAWK | £4.95 |
| ADVENTURE CONSTRUCTION SET | £7.95 |
| THEATRE EUROPE | £4.95 |
| BATTLE OF BRITAIN | £4.95 |
| ZORK I | £3.99 |
| ZORK II | £3.99 |
| ZORK III | £3.99 |
| STAR CROSS | £3.99 |
| DEADLINE | £3.99 |

| | |
|-----------|-------|
| SUSPENDED | £3.99 |
| SUPERMAN | £3.99 |

McGraw Hill Educational Software

Min Order 5 Pieces ALL £1.50 EACH

ALGEBRAIC RELATIONS, PROBLEM SOLVING I & II, SKILL TESTER, SHAPES, COUNTING, FRACTIONS I & II, WATER CYCLE, DECIMAL FRACTIONS, PLACE VALUE, MULTIPLICATION I & II, ADDITION & SUBTRACTION, MEMORY TRAINER, DICTIONARY USE, BALLOON GAME, ALPHABET KNOW HOW, WORD POWER, HANGMAN 3, 4, 5, 6, GRAPHS 1, 2, DIVISION 1, 2, SET THEORY

VIC 20 SOFTWARE

ALL £1.50 EACH Min Order 5 Pieces

SUPER WORM, ROBOT ATTACK, MANGROVE, BOSS, PIT, SLICKER PUZZLE, ABDUCTOR, ANNIHILATOR, THE CATCH, READING, MATHS JUNIOR, ENGLISH LANGUAGE, KNOW YOUR CHILDS I.O., SPACE SNAKE, KNOW YOUR PERSONALITY, MARTIANS, CONNECT 4, FROG CHASE, SNAKE, ROAD USER, JIGSAW, TRAP, NURSERY SONGS, ROB CARRIERS MENU PLANNER, SUPER GAMES PACK 1, SUPER GAMES PACK 2, MATCHMAKER, MATHS 2, ARITHMETIC 1, GEOGRAPHY, MATHS 1, HOPPIIT, SKI, INNOVATIVE 7 PROGRAMS, EASY PACK.

BARGAINS FROM 1st PUBLISHING

8 BOOKS FOR JUST £9.95 + £2.50 p&p Normal RRP over £50.00
YOUR 64 CASSETTE BOOK, GRAPHICS BOOK FOR THE COMMODORE 64, PEAKS & POKES 64, TRICKS & TIPS FOR YOUR COMMODORE 64, ADVANCED MACHINE LANGUAGE BOOK FOR THE 64, IDEA BOOK 64, MACHINE LANGUAGE BOOK FOR THE 64
1st PUBLISHING PROGRAMS ON DISC - ALL JUST £10.95 EACH
FIRSTWORD (WORD PROCESSOR)
FIRSTBASE (DATABASE)
BASIC 64
PASCAL (LANGUAGE)
ADA TRAINING COURSE

UTILITIES & PERIPHERALS

| | |
|---|---------------------|
| SIMONS BASIC EXTENSION (DISC OR CASS.) | £4.95 |
| 1551 DISC DRIVES FOR C16 and +4 | £79.95 |
| FASSEM MIC LANG. ASS. | £2.99 |
| TOUCH TYPE (CASS.) | £2.95 |
| MONEY MANAGER (DISC) | £2.95 |
| INTRO TO BASIC Pt. II (CASS.) | £4.95 |
| EASY FILE (DISC) | £9.99 |
| PROGRAMMERS REF GUIDES | £3.95 |
| MACRO ASSEMBLER DEVELOPMENT (DISC) | £4.95 |
| FUTURE FINANCE (DISC) | £9.99 |
| EASY SCRIPT | £9.99 |
| DR. WATSONS 64 ASSEMBLY LANGUAGE COURSE (DISC) | £9.95 |
| COMMODORE 128 MUSIC MAKER | £9.95 |
| MUSIC STUDIO BY ACTIVITY (CASS.) | £3.95 |
| EASY SPELL (DISC) | £9.99 |
| COMMODORE 64 MIMAKER | £7.50 |
| BREDENS BASIC DISC & CASS. | £9.95 |
| SCRIPT & WORD PROC. CART. FOR C16 & +4 | £9.95 |
| COMPANY PACK 123 ACCOUNTING CONTROL SYSTEM FOR +4 ON DISC | £4.95 |
| ASSEMBLER TUTOR DISC | £9.95 |
| PROGRAMMERS UTILITY DISC | £4.95 |
| MANNESMAN TALLY EP 80 + | £149.94 + £5.00 p&p |
| HANDIC VIC-SWITCH MULTI USER SYSTEM | £9.95 |
| EPSON P40 PRINTERS | £39.95 |
| DISCS 10 FOR | £8.95 |

p&p 75p all orders
overseas £1.00 per tape.

LOGIC SALES LTD

6 Midgate · Peterborough · Cambs
24 hour ordering on 0733 313870

SINCLAIR TITLES

ALL £1.95

THE EXTRACTOR, ASHKERON, TECHNICIAN TED, CONFUSION, ROBOT MESSIAH, PSYCHEDELIA, VIDEO POOL, KONG EX, THE TRADING GAME, QUICKSILVA WORD PROC., SPELLBOUND (BEYOND), TWIN KINGDOM VALLEY, T.L.L., JASPER, CHEQUERED FLAG, CODENAME MATT

ALL £2.95

FRIDAY 13th, VIEW TO KILL, PSYTAXX, STARBIKE, GIFT FROM THE GODS, TALOS, FANTASIA DIAMOND, HEATHROW A.T.C., HIGHWAY ENCOUNTER, FACTORY BREAKOUT, GOLFING WORLD, ZORRO, WILLIAM WOBBLER, BEACHEAD, BEAMRIDER, JUGGERNAUT, BLADE RUNNER, SPIDERMAN/HULK, SABRE WILF, ALIEN & NIGHTLORE, THE COVENANT, WHO DARES WINS, TOY BIZZARRE, GEOFF CAPES, BOUNTY BOB STRIKES BACK, EDDIE KIDS, BIZZ/COM, LINKWORD GERMAN, LINKWORD SPANISH, MONTY MOLE, MONTY ON THE RUN, POTTY PIGEON, MONTY IS INNOCENT, SUPER SHOW, SHOUT JUMPING, KONG STRIKES BACK, MATCH FISHING, NIGHTSHADE, FIGHTING WARRIOR, GYROSCOPE, DEATH STAR INT., EVERYONES A WALLY, WHEELIE, GHOSTBUSTERS, HACKER

ALL £3.95

ALIEN HIGHWAY, PINBALL WIZARD, CYBERLUN, GUNFRIGHT, TWISTER, MANTRONIX, FRANK BRUNOS, ROBIN OF SHERLOCK, ADVENTURE LAND/SECRET MISSION, DALEYS SUPERTEST, REVOLUTION, SAM STOUT SAFEBREAKER, TERRORMELINOS, BOUNDER, WEST BANK, METABOLIS, SKYFOX, NOMAD, ROCCO, CRITICAL MASS, SABOTEUR, CAMBET LYNX, ZODIS, SUPERCHESS 3.5

ALL £4.95

TAU-CETI, AMERICAN FOOTBALL, SCRABBLE, LORDS OF TIME, ADVENTURE QUEST, EMERALD ISLE, COLLOSSAL ADVENTURE, NEVER ENDING STORY, ARCADE HALL OF FAME

ALL £5.95

THE ILLUSTRATOR, INTERNATIONAL KARATE

EDUCATIONAL PACKS

PHYSICS 'O' LEVEL and 'A' LEVEL, MATHS 'O' LEVEL, CHEMISTRY 'O' LEVEL, BIOLOGY 'O' LEVEL £9.95
HILL MCGIBBON PACK
PUNCTUATION PETE, BALLOONING, CAR JOURNEY, SPECIAL AGENT £7.95
LONGMAN SOFTWARE 6-10 YEARS
SUM SCRUNCHER, ROBOT RUNNER, WILD WORDS, A.B.C. LIFT OFF £6.95
GRIFFIN PYTHAGORAS PACK INC.
10-15 YEARS
THEORUM OF PYTHAGORAS, FORMULAE & COMPOUNDS, FUNDAMENTAL ALGEBRA £5.95
GRIFFIN MATCHS & CHEMISTRY PACK
10-15 YEARS
ATOMS & MOLES, INTRO TO TRIGONOMETRY, MENTAL ARITHMETIC £5.95

GAMES PACKS

SILVERSOFT PACK INC.
SUPERMUTT, ARCADE ACTION ORBITER, STARSHIP ENTERPRISE, CYBER RATS, ARCADE ACTION, SLIPPERY SID £6.00

CODENAME MATT II, VIEW TO KILL, FRIDAY 13th, TEST MATCH, BEAKY & THE EGG SNATCHERS, THEY PYRAMID £5.95
IMAGINE PACK INC.
STONKERS, PEDRO, ALCHEMIST, ZOOM, ZIP ZAP, CONQUEST £3.95
ON THE COKE INC.
SNOOKER, WORLD CUP FOOTBALL, OLYMPICS, GOLF, DERBY DAY £6.00

UTILITIES

| | |
|--------------------------------|---------------------|
| QUICKSHOT II WITH M/S | £10.95 |
| ALPHACOM PAPER 5 ROLLS | £ 8.95 |
| CURRAH MICRO 5 SLOTS | £ 2.95 |
| COMPUTER TO T.V. LEADS | £ 1.90 |
| MICRODRIVE CARTRIDGES | £ 1.99 |
| ALPHACOM/TIMEX 32 PRINTERS | £31.95 |
| SPECTRUM ADDITIONAL DRUM KITS: | |
| LATIN | £3.99 |
| AFRO | £4.99 |
| ELECTRO | £4.99 |
| MANNESMAN TALLY EP 80 + | £149.95 + £5.00 p&p |
| SPECTRUM 48K & 128 POWER PACKS | £9.95 + £1.00 p&p |
| 3 INCH DISK ONLY | £3.50 EACH |

p&p 75p all orders
overseas - £1.00 per tape,
£2.50 packs, £5.00 peripherals

LOGIC SALES LTD

6 Midgate · Peterborough · Cambs
24 hour ordering on 0733 313870



Atari returns to its roots

John Cook zaps away on the forthcoming Atari 7800 and reports on its performance

Atari made its name in the home market place with games consoles of one sort or another – did you know, for example, that according to its own figures, an amazing 25 million 2600s (the old VCS that has been kicking around since the mid-seventies) has been sold to date – one million alone in 1985, 100,000 of which came into the UK? Considering 1985 was well into the 'computer revolution', that's a lot of consoles.

Now Atari has come up with a follow-up machine to the long serving 2600 VCS; the imaginatively named 7800 ProSystem – because it's three times better? The *Popular* games droids were powered up and led to the console to find out.

Hardware

What you get for your £69.99 is the console itself – an imposing black box slightly smaller than its predecessor – two controllers (joysticks to you), transformer, TV lead and *Pole Position II* on cartridge. The external controls are limited to a power on/off, reset game, a select option (to control difficulty levels) and a pause button. These are all situated along the top front of the machine, with the two joystick ports tucked underneath its projecting lip. Two 'difficulty switches' (a hand-me-down from the 2600 to ensure full compatibility) are also to be found here.

Opening up the box shows a relatively uncluttered circuit board with 4K of Ram, another 4K of Rom, a 6502 CPU running at 1.79Hz (the 2600 had a cut-down version of the same chip, the 6507) and two major graphics chips. Tia (again, as found in the 2600) and Maria (groan) which gives the 7800 more colours and higher screen resolution.

The cartridges themselves are Rom only and at the moment are planned to come in predominantly 64K and 128K sizes which should retail at around £10 and £20 respectively, although no firm prices have been fixed as yet.

The design of the cartridge slot and the supporting hardware has ensured compatibility with 2600 cartridges – Atari claims that if it plays on the VCS, the ProSystem can handle it.

The Rom supports a total of 64 sprites (with a maximum of eight per line) but the Player-Missile graphics collision detection of the XL/XE is not included. Instead, the machine uses what is described as a 'coin-op' approach, with each line of the raster display being thought of as a bit-map, held as line-Ram in memory.

The controllers supplied with the machine are simple Atari-style joysticks with an oblong base that fits neatly into the hand and two independent fire buttons, one on each side. They worked well enough, but had a suspect feel – certainly not robust enough for extended use. The good news here is that your existing Atari-style joysticks (and that's almost every single one on the market right now) will work well for most games – a significant advantage over the competition.

Software

Like most machines, ultimately the ProSystem is going to be judged by the quality, quantity and price of the soft-

ware produced for it. Sure, it can run all that 2600 stuff – but who wants to play two year old games?

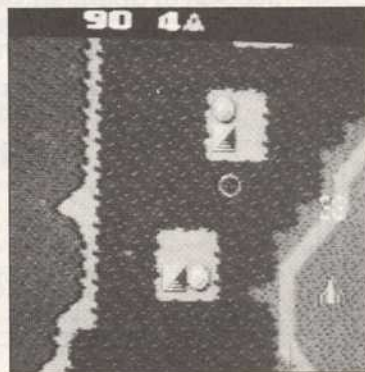
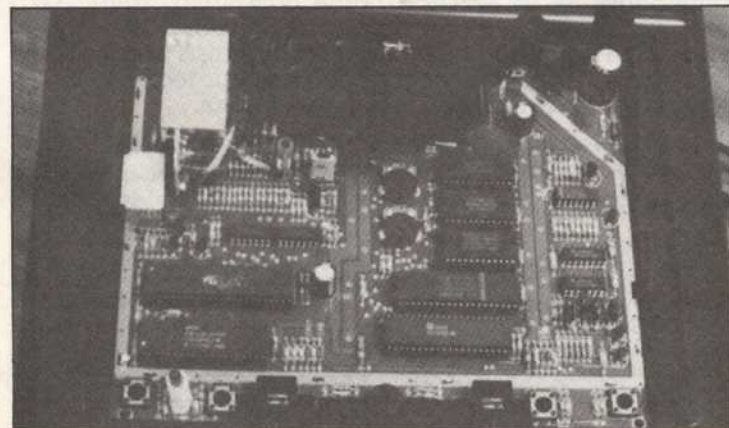
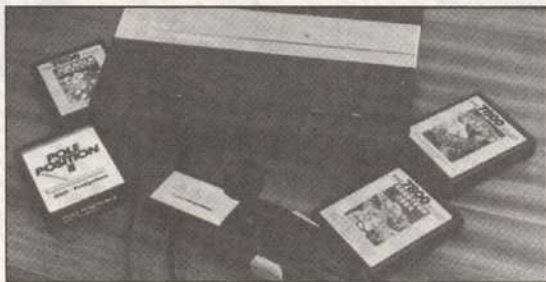
What the 7800 has got going for it is that Atari are making available a development system which runs on the ST and it looks like third party authors will not have to pay any premium to produce games – unlike proposals for the other competing systems. This should ensure a flood of software, if the thing sells.

The software cartridges we had available for test were three Namco licensed titles: *Pole Position II* (bundled with the machine), *Galaga*, and that old favourite *Xevious*, with that Williams' oldie *Robotron 2084* completing the set. All played well, with graphics and speed up to a very good Commodore 64 standard – sometimes beyond, certainly a significant improvement on the 2600.

Conclusion

At £70 (release date around March/April), the ProSystem undercuts the competition by £30 at least (Sega comes in at around £100, the basic Nintendo, £120) and its cartridges may also be cheaper. However, the software presently available compares less favourably with that for the other two.

At the moment it looks like a classic case of paying the money and taking the choice – but for quality blasting on the cheap, the 7800 may well have the edge.



ROMANTIC ROBOT present

£39.95
SPECTRUM 48K
& 128K (48K MODE ONLY)

MULTIFACE 1 & 2 must rank as the most useful multi-purpose interfaces for SPECTRUM or AMSTRAD. They enable you to copy ANY program at ANY point and SAVE it onto ANY media - disk, tape, cartridge, wafer.

They have a unique MULTI TOOLKIT (with 250 registers, customise programs, pin in every single byte to AMSTRAD/SPECTRUM and save/load) - you can PEEL/POKE in Disk ROM & BK RAM - means NO additional software takes NO part of AMSTRAD/SPECTRUM RAM - is FULLY AUTOMATIC - 100% reliable - all you have to do is 1) press the MULTIFACE button 2) select a function - 3) input a name for saving instead of returning 4) select a function - 5) input a name for saving 6) select saving destination

Multiface one & two

MULTIFACE 1 is the ONLY product that can put literally anything onto anything - Disk, Cartridge, Wafer, Discovery Base or Expansion. Specially designed for use with SPECTRUM. It does everything you can do with a joystick interface. Plus a switch to make it writable whilst AMSTRAD/SPECTRUM RAM is FULLY AUTOMATIC - 100% reliable - all you have to do is 1) press the MULTIFACE button 2) select a function - 3) input a name for saving instead of returning 4) select a function - 5) input a name for saving 6) select saving destination

MULTIFACE 2 is the ONLY device capable of saving any program PROPERLY and AUTOMATICALLY onto screen, colours and sound / 1 / 1. Both MULTIFACEs are menu-driven with on-screen prompts and instructions user-friendly, low error.

MULTIFACE 1 also gives you a joystick interface (Amstrad compatible) plus a switch to make it writable whilst minimal room on disk tape etc. - using MULTIFACE 2. Programs saved with MULTIFACE ONE can RUN independently. Please state if using KEYPAD or disc interface on Spectrum

NO.1 MULTIPURPOSE INTERFACES FOR AMSTRAD & SPECTRUM

I enclose a cheque/PO for £..... (UK & Europe please add £1 overseas £2)
or debit my No.
Name Card expiry.....
Address.....

Please send MULTIFACE ONE £39.95 MULTIFACE TWO £46.95
SELENE & ANACHRONISM £ 9.95 STEEPLEJACK £ 4.95
NEVER MIND... Amstrad £ 9.95 or disk version £ 14.95
MUSIC TYPEWRITER £ 7.95 WRIGGLER Spectrum £ 2.95
WRIGGLER Amstrad tape £ 7.95 or disk version £ 11.95
TRANS-EXPRESS cartridge disk wafer £9.95

ROMANTIC ROBOT UK LTD 77 Dyne Road London NW6 7DR ☎ 24 hrs 01-625 9463

SELENE plus ANACHRONISM

A fantastic time-supper pack of sci-fi adventures for travellers in time - both very intriguing and exciting, concise and detailed. Funny and witty. Travel in time backwards and forwards as you never did before - certainly not in any adventure yet!

STEEPLEJACK

A short form stands in the way of notorious 1987 and only STEEPLEJACK can standish it with his drill and over-sized pair of dead boots in this highly frenzied, original, and stylish action game. STEEPLEJACK must be very fast, crafty, alert and strong there is a whole army of creatures and features one can only find in a short time, so much to do, so little time left!

NEVER MIND THE NASTIES

With contains the same intense colour and activity as ALL other. In other, the hit game WRIGGLER. The action takes place in a weird and bizarre world full of mutants and monsters, gungoes and saws, conveyor belts and evasive obstacles, deserts and pyramids, transmitters and space stations, a world that must be explored and fought through to prevent a total annihilation of human race.

MUSIC TYPEWRITER

Complete Spectrum music system for writing, editing, playing, printing & storing music with real notation graphics.

TRANS-EXPRESS

The software way of transferring Spectrum software. 4 utilities for m'drive.2 for wafadrive.2 for Opus Discovery.

TOP SOFTWARE AT BOTTOM PRICE



COMPUTER GRAPHICS LTD.

FREELANCE PROGRAMMERS

We are now looking for programmers to work on a variety of new and exciting projects on a freelance basis. Applicants should have previous experience of Spectrum, Commodore 64 or Amstrad home computers, and preferably have at least one commercially marketed program to their name. Successful applicants will have the back-up of the best team of artists in the industry, and can expect to receive full technical support from our team of 'in-house' programmers, whose reputation is second to none.

To arrange an informal interview, please write to the Software Development Manager at the address below, or telephone during working hours.

ODIN COMPUTER GRAPHICS
Mulberry House
Canning Place
LIVERPOOL L1 8HN
Telephone: 051-709 4462

Giving some style to your Amstrad

The print of the Amstrad PCW8256 is a very good quality, but it is limited to one style (though not one size). There are currently four packages available for the 8256 to give it a greater range of typefaces. All four – *FontGem*, *PolyPrint*, *Tasword* and *Tasprint* – have different pluses and minuses and work in different ways.

FontGem is unique among the three packages in that it works with *Locoscript* automatically – files don't have to be converted to Ascii before they can be printed out. It works by patching on a typeface to the CP/M or *Locoscript* .EMS file on a disc. This sounds complicated but is in fact very simple to do and works very well. In plain English, what it does is to add a typefont to a .EMS file on a disc (the .CMS file is either J20LOCO.EMS or J13CPM3.EMS/J14CPM3.EMS – the file that makes the disc boot up). Once this is

PolyPrint will print out an Ascii file in any of a massive 25 different typefaces. Nine typefaces come with the program and the other two sets of eight typefaces cost about £20 a set. *PolyPrint* comes with *PolyWord*, a simple Ascii word processor to create files to print with *PolyPrint*. Control characters can be put in a file in the format of *(character) at the start of a line to give control over double/normal width, underlining, centring, changing of the typeface, setting the left margin and turning automatic justification on or off.

LocoScript control characters in an Ascii document do not exist, so you have to put these control characters in yourself. *PolyPrint* is not as easy to use as it might be, but with a little practice you can soon be printing out good quality leaflets on your humble Amstrad.

One big problem with *PolyPrint* is that each new type-

(normal width – double width can be too large to use at times!)

Tasman Software has two packages containing different fonts: *Tasword 8000* is a word processor that prints in three faces and *Tasprint 8000*, which gives you five typefaces for *Tasword* and also a program to print out text in a 'direct print mode' to the printer in the selected typeface. This mode lets you select a typeface and type a line of text which is then dumped to the printer. It is useful for adding one or two lines of text to a piece of paper at the last minute, but that's about as far as it goes. *Tasprint* has eight typefaces in total: Compacta, Data-Run ('digital'), Lectura Light, Median, Palace Script, Rancho, Breaker and Outline. All these typefaces can be added to *Tasword* or used in direct print.

Tasword comes with Lectura Light and Median typefaces, but can also print in the normal *Locoscript* style. A document created on *Tasword 8000* can contain special printer control codes to change the typeface, put the text in a box, etc. The typeface may be changed many times on the one line. Being a full word processor, with printing in different styles an added extra, the editing facilities are very powerful.

simply have to put the paper in again with the new typeface selected, which is obvious once you use the program.

For the business user who just wants a different print style, possibly changing it occasionally, then *FontGem* is easily the best. *Tasword 8000* needs the other typefaces really to be any use (for the purposes of this article), and with them, it is a powerful, all round package, with the power of a full WP that can print in different styles. *Tasword* is a very good package, but you will have to learn the new word processor as well. *PolyPrint* from New Star Soft-

FontGem - 'Business 1' (Pitch: P5)

FontGem - 'Business 2' (Pitch: 10)

FontGem - 'Business 3' (Pitch: 12)

FontGem - 'Business 4' (Pitch: 10)

FontGem - 'Outline' (Pitch: P5)

FontGem - 'Vaudeville' (Pitch: 12)

FontGem - 'Old English' (Pitch: P5)

FontGem - 'Stencil 1' (Pitch: 10)

done, whenever the disc is booted up, the new typeface will be in use rather than the old one. The program is menu-driven and very easy to use. There are eight typefaces available; four business typefaces and Old English, Vaudeville, Outline and Stencil. One point about *FontGem* is that as you can only patch on one typeface at a time, documents may only be printed in one style. One advantage given by working in *Locoscript* is that all *Locoscript* control characters (bold, underline etc.) work properly. Any text to be printed in draft quality uses the standard typeface.

face is loaded off the disc and so printing a file that regularly changes typeface takes a very long time. *PolyPrint* does have the greatest selection of typefaces, though.

The eight typefaces supplied with *PolyPrint* are Bodoni, Flash Bold, Commercial Script, Helvetica Light, Broadway, Helvetica Medium, Bodoni Italic, Minuscule Print and Cooper Black (large). With the two widths available, this is a good selection of typefaces, with Minuscule being very small (smaller than Pitch 17 on *Locoscript*) and Cooper Black fitting only two characters to one centimetre

HELVETICA MEDIUM ITALIC
SANS SERIF SHADED
HELVETICA LIGHT ITALIC
MICROGRAMMA EXTENDED
HELVETICA (LARGE)

The programs fall into two categories: those for serious use in documents and letters and one for small businesses, clubs, and so on, to use in preference to having a typesetter design a newsletter or an attractive sheet for advertising, etc.

PolyPrint fulfils the latter category very well. It can be used to design good textual artwork easily, though a problem occurs if the changing of the print style in use on one line is required. To do this you

ware, 200 North Service Road, Brentwood, Essex. £29.90 (extra typefaces: £19.90 for 8).

FontGem from Gemini Marketing, Gemini House, Dinnan Way, Exmouth EX8 4RS. £19.95 with 8 typefaces.

Tasword from Tasman Software, Springfield House, Hyde Terrace, Leeds LS2 9LN. £24.95 with 2 typefaces.

Tasprint from Tasman, address as above. £14.90 with 8 typefaces.

David Wallin



Demos and monsters from Compass

Tony Bridge reviews the newest from the creators of Project X Micro Man

Compass Software has been a favourite software house of mine for some time now – producer of *Project X Micro Man*, its adventures are written with *The Quill*, but manage to convey a good atmosphere along with some interesting problems and unusual storylines. Much of the appeal of John Lemmon's stories lies in the presentation, with a neat screen display of well-matched colours and carefully-crafted character set.

Those pictures that are present are simple but to the point, and Lemmon makes a special point of an ancient but favourite device of mine, the little character-sized graphics to denote objects present and those held in the players inventory.

These were once a well-used feature, being common some years ago before the advent of *The Illustrator* and the attendant crop of pictures to accompany the scene. In *Demon*, they are unnecessary but welcome nevertheless.

But what of the story? Well, it concerns the exploits of one Morrack (whose part you play in the adventure) and his wanderings through a mystic fantasy land – not only will you meet Giant Green Trolls, Sid the Rat and Herne, the Hunter of Hell, but also Drakon the Evil Lord and none other than Charon the Ferryman himself, who will gladly take your coin in exchange for a trip across the River Styx to Hades. The 70 text-only locations (and 20 more with graphics) describe a very atmospheric landscape in which all manner of interesting things are going to happen. The text is colourful with a good character set and the pictures, too, are particularly well-drawn. All in all, well-presented, even though the obligatory spelling mistakes are present: Ram save and load are supported along with all the usual *Partch'd* effects.

The puzzles aren't particularly hard, especially if you remember one of the golden rules of adventuring; *Examine everything*. Most objects under such examination will yield up some interesting information and you'll find that you won't finish the story without checking everything you come across.

Similarly, the descriptions of many locations hold their own clues, so read these thoroughly. If you follow this course of action progress should be

"The puzzles aren't particularly hard, especially if you remember one of the golden rules of adventuring; examine everything"

steady. John Lemmon tells me that he has used every flag in *The Quill* to bring the characters to pseudo-life; some of these characters are good, others not so good. In keeping with the sense of magic about the proceedings, spells are waiting for you to pick up and use – you'll find one near the beginning, but you must decide how best to use it.

To start off the game, make sure that you examine the status in the opening location and read the inscription thereon; close by you will find Ashmeard's body, and you must pay particular attention to what lies within!

The adventure is very good value at just £2.50 for the Spectrum now, with Amstrad and Commodore versions to follow "soon". Oh, and check out the logo, a wizened old wizard, by design or accident reminiscent of someone not entirely unadjacent to a certain elfish person! Particularly interesting (and a first?) are the painted lead miniatures of the characters within the adventure. Compass Software is at 36 Globe Place, Norwich NR2 2SQ.

Elf Towers is undergoing major reconstruction and so for a few weeks the old fellow is perching on the dining-room table – the resultant upheaval has buried some tapes (though not, I trust forever) and brought others to light. One such is *The Hammer of Grimold* from River Software of Canterbury. Again, the story, which concerns your efforts to recover the Hammer (an ancient dwarfish treasure) is *Quill'd* and *Patch'd*, though not *Illustrated*.

The adventure has the look of a 1982 program, with no re-designed character set and fairly sparse location descriptions. Nevertheless, suspense is well maintained with hooded strangers glowering menacingly towards you in the opening Inn and so on.

Like *Demon from the Darkside*, River's

story repays examining with dividends. Try moving dead bodies – the trap thus revealed may actually be of some help!

This brings me to the Help facility; in most adventures, type *Help* and all you're likely to get is some smart comment or a suggestion to write off for a hint sheet. Some time ago, I mentioned *Monsters of Murdac*, a disc based story from Global Software. This featured a dynamic Help which pulled in specific answers from a database held on disc. Obviously this is difficult for a cassette based game, but River makes a brave stab at it, and give the player several coded clues for difficult situations. This is the first time I have seen this particular aid in a *Quill'd* adventure, and it is a welcome addition.

As I said, the location descriptions are sparse; no pretence, for example, at disguising the necessary maze (how I hate them!) – it's simply "Forest Maze", which I suppose has a certain simplicity and directness. At least you know what you're supposed to be doing! The commands required can be very finicky; at the start, for example, you must *Sit Down* in the inn before the necessary subsequent action takes place (and of course, *Stand Up* before you can progress).

At least you are given some clue about this ("Here's a nice seat for you, sir", says the Landlord), but later a piece of food may be *Tasted* to reveal a valuable clue, although *Eating* it will prove fatal. As one more example, to reveal the flint in the stones, you must *Kick Stones* – moving, searching or examining them reveal nothing.

I'm sure that the author has good reasons for this sort of word-matching game, but to me it just means frustration and annoyance. Some situations are a trifle belaboured; the gigantic orc just happens to give the master key to you for safe keeping.

Still, the game, although not as polished as *Demon*, has a number of good points – I especially like the concept of a backpack which can hold more items than could otherwise be carried. It's a detail that is often seen, though not for some reason in *Quill'd* adventures. And the magic figure of £2.50 makes it reasonable value. Contact River Software at 44 Hyde Place, Aylesham, Canterbury, Kent CT3 3AL.

Terrors of Trantoss on Spectrum. How do I open the gates of Garnath? What do the runes say on the staff? Mark, 3 Rawcliffe Landing, Shipton Road, York YO3 6XL.

Spellbound on C64. Fourth floor: can't get through the wall. Ground floor: can't get over the pit to Gimbal. Debbie Hunt, 28 Walters Road, Hoo, near Rochester, Kent ME3 9SR.

Terrors of Trantoss on Spectrum. How do you pass the lizard inside the gates of Garnath? Keith W Adam, 19 Navarre Street, Dundee DD5 2TW.

Deadline on C64. Any help appreciated. David Oates, Station House, Station Road, Queensbury, Bradford, W Yorks BD13 1HR.

Dungeon Adventure on C64. What is the packing case for? Can objects be carried in it? If so, how do I get them in? David Oates, Station House, Station Road, Queensbury, Bradford, W Yorks BD13 1HR.

Borrowed Time on C64. What is the statue for? What use is Doris? David Oates, Station House, Station Road, Queensbury, Bradford, W Yorks BD13 1HR.

Zork I on C64. What is the pile of plastic for? David Oates, Station House, Station Road, Queensbury, Bradford, W Yorks BD13 1HR.

The Boggit on C64. How do I get into the small booth in part 1, and past the web in part 3? David Oates, Station House, Station Road, Queensbury, Bradford, W Yorks BD13 1HR.

Hitchhikers Guide to the Galaxy on Atari 800XL. How do you get past the screening doors, how do you get some tea, how do you open the glass case, and how do you charm the vogons? In *The Payoff*, once you're in the vault, must you find the vault number? Jasper Doviatt, 4 Eaton Crescent, Uplands, Swansea, West Glamorgan, SA1 4QJ.

Heroes of Karn on Spectrum. I can't get past the serpent. Helen Norton, 34 Main Street, Branston, Burton on Trent, Staffs DE14 3EY.

Seabase Delta on Spectrum. I have made the seesaw, but where do I go with it? Also, I can't find the egg and what do I do when I have it? Helen Norton, 34 Main Street, Branston, Burton on Trent, Staffs DE14 3EY.

Sinbad and the Golden Ship on Spectrum. How do you control the genie when out of the lamp, and how do you get past the oak door in the mountain in part 2? Peter Georgiou, 3 Shap Drive, Warndon, Worcester, WR4 9NY.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair - help is at hand.

Fill in the coupon, explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember - the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure on (Micro)
 Problem
 Name
 Address

Get writing - get Popular

Popular Computing Weekly always welcomes contributions from its readers for articles, features, and program listings.

Whether you want to write articles, see your programming masterpieces in print, pass on some words of wisdom, or simply let off steam, there's space in the magazine for you.

Ideas for **feature articles**, or completed articles, should be sent to Christina Erskine. All aspects of home computing are considered, but we cannot feasibly accept anything longer than 2,000 words, so brief is best. It's worth checking by phone or letter first that your article will be suitable. Payment is normally £35 per published page.

Technical editor Duncan Evans looks after the **program listings**, and articles on programming. We rely on you for our Programming section, so earn yourself a place in the *Popular* Hall of Fame (and £25 for each page we print) by having your program published. Even if it's not 100s of K of pure machine code, but a short snappy routine, there may well be a place for it in **Bytes and Pieces** (£10 a shot).

Articles on any aspect of programming are also welcome - with short listings included if relevant.

Got something you feel needs saying loud and clear? Your opinions on any aspect of the computer industry are welcomed, so why not write in to the **Ziggurat** section? No more than 600 words, please. If published, we'll pay you £15.

So maybe it's not the money you're after, but you'd just like to have some say in the magazine.

For shorter comments, general observations or queries, there is of course the **Letters page**, with the tempting offer of a year's supply of *Popular* binders for the Star Letter each week.

For more specific points, our team of columnists are always willing to answer questions, and keen to hear the latest information. Drop your lines to **Tony Bridge** (adventure hints always gratefully received); **Tony Kendle** (who wants as many Arcade pokes, maps, solutions, etc, as possible); **David Wallin** (communications); **Kenn Garroch** (programming problems); **Mark Jenkins** (music queries and sample tapes) and **Martin Bryant** (computer chess comments).

All letters should be addressed to *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP. If you mark your letters with the department you want, things get processed much more quickly.



Left: the adventurous Tony Bridge.
 Right: the active Tony Kendle.



Diving in with the Cobra

Tony Kendle brings you the real way to get through Strike Force Cobra

This week we are carrying on with the tips for the first level of *Strike Force Cobra*. The game strikes me as incredibly difficult and I am sure you will need these tips. What happens after level one I hate to think.

We left you, in the November 13 issue, in control of man number three, taking care not to enter a lift.

Change now to man number four who starts at location E0 by a window. Throw two EFG's through the window to slow down the robot inside. Dive in and dive again to get past the robot and through the door. Continue past the patrol and stand near the two towers of blocks.

Now change back to man number three. Follow man four to the towers above. Stand on his shoulders, dive over and turn right (what an acrobatic game this is!). Enter the door at F5, avoid the fireballs and dive over the laserbeams (they make it sound so easy). Dive through the window and immediately crouch. Shoot out the flying saucer and then activate the door control. This activates the door at B8, which thereby allows man number four to back track and gain entry later.

Dive through the window at G7 and turn round immediately to avoid landing on the laser beams. Proceed through to G4, avoiding the robot at G5 of course.

Enter the door at G3 and by careful timing dive across the sliding hazard. First aid is available in the small room at G0 (you will need it). The hostage at G2 will give you part of the combination and also help you to get back to G3 by jumping on his shoulders.

Avoid or shoot the saucer at E5 and proceed to the lift at D4.

Now change back to man number four. Back track to location E0 and then go left to B0 and crouch.

You can earn yourself extra time by destroying the organic computer at D1. To do this you need to open the door using the lever at A0.

Proceed to A6 and enter the window to A7. The door at B8 is now open. Take care when going past the two patrols here.

First aid is available at location D8, although it is hidden. You may wish to leave this here until you have rescued the hostage (see below). The first aid box is

"This is where it gets silly. Walk left, dive and turn left, one step back and walk right, dive and turn left, take one step back and walk left and dive (take your partner and dosey-do)"

in the front right corner of D8 and you will have to jump up to reach it. If man number three is positioned at D7 you will see the layout.

Enter the door to your left at C6 and continue through to B5. Shooting the robot will slow it down but you risk hitting the hostage. With care you can dive past it. The hostage will give you your second combination number.

Return to C6 (and back up to get the first aid if not already used). Enter C5 and by using the block in the corner dive over the stacks. If you haven't shot it already you must avoid the flying orb.

You have now got these two men in position and it is time for the others to do some work.

Change to man number one who is at location O4, outside a locked door. Go round the perimeter of the building to the window at location J0. Throw an EFG at the saucer through the window and then enter. Stand on the pad to open the two lifting doors.

Change to man number two who is at location O8. Move left to location K8. Dive in through the window (turning back to avoid the row of blocks). Crouch to avoid the gun. Dive across the two rows of blocks, timing the jump very carefully.

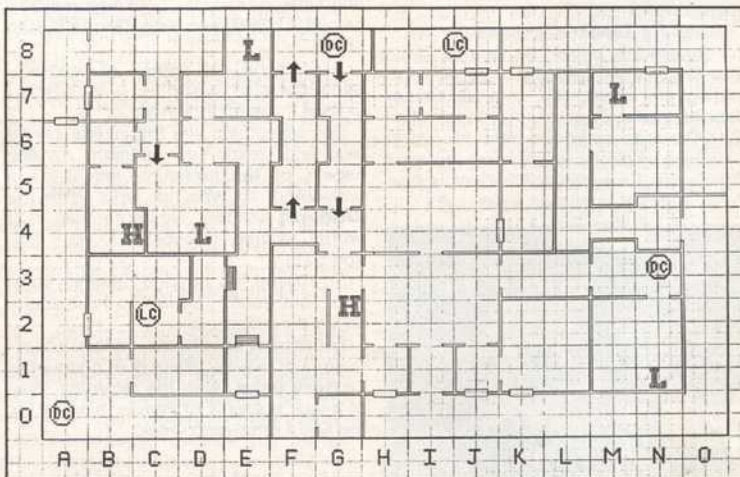
Kick the door at K6 twice to gain access to K5. Be very careful.

This is where it gets silly. Walk left, dive and turn left, one step back and walk right, dive and turn right, take one step back and walk left and dive (take your partner and dosey-do).

Dive through and turn to J4. Crouch beneath the guns. Avoiding the guns and the robots go to J6. Enter J7 and then J8. Dive across the moving hazard and activate the lift (for the use of men three and four at D4). Return to I5 the way you came, or try your luck in H6 if you like!

Dive across the lasers to I3, timing the jump carefully.

First aid is available at H1, use the window at H1 after shooting the saucer through the window. Do not use an EFG as this may destroy the first aid box! Once in this room do not stand on the



Strike Force Cobra map

Top Twenty

| | | | |
|----|------|-------------------------|-------------------|
| 1 | (20) | Paperboy | Elite |
| 2 | (3) | Trivial Pursuit | Domark |
| 3 | (2) | Computer Hits Vol 3 | Beau Jolly |
| 4 | (8) | Konami's Coin-op Hits | Imagine |
| 5 | (-) | Scooby Doo | Elite |
| 6 | (5) | Breakthru | Data East/US Gold |
| 7 | (4) | 180 | Mastertronic |
| 8 | (7) | They Sold a Million (3) | Hit Squad |
| 9 | (10) | Infiltrator | Mindscape/US Gold |
| 10 | (9) | Five Star Games | Beau Jolly |
| 11 | (6) | Cobra | Ocean |
| 12 | (18) | Ollie and Lisa | Firebird |
| 13 | (1) | World Games | Epyx/US Gold |
| 14 | (19) | Ninja Master | Firebird |
| 15 | (13) | The Great Escape | Ocean |
| 16 | (-) | Konami's Golf | Imagine |
| 17 | (-) | Repton 3 | Superior |
| 18 | (14) | Avenger | Gremlin Graphics |
| 19 | (-) | BMX Simulator | Code Masters |
| 20 | (-) | Head Coach | Addictive |

All figures compiled by Gallup/Microscope

pressure pad.

The door at K3 will be open. You may consider swapping over to man number one at this stage if man number two is particularly run down.

Enter to K3 and follow the scooter in a clockwise square. Enter M3 shooting as you go. Attempt to stop the scooter to gain access to the door control lever. This unlocks both doors O4 and M7.

Carefully enter N2 and turn and walk left. After a bullet passes walk out into the corridor and jump to avoid the next bullet (facing forwards whilst still in the air). Dive over the next bullet, take two or three steps forward, dive, turn right and dive.

If you are still in one piece stand by the lift. Change to man number one if you haven't done so yet. Back out through the window to location J0. Extra time is available by destroying the organic computer at location L2.

Proceed round to the door at O4 and into location N4. Round the corridor to L6. You will find first aid in location L7. Kick the door at M6, enter and throw two or three EFG's.

The robot will slow down long enough for you to be able to avoid it and rescue the hostages. Throw the EFG's again to slow the robot down and gain entry to the lift at M7.

You have now completed the first floor after which we leave you to it. Good luck.

POOLSWINNER

THE ULTIMATE POOLS PREDICTION PROGRAM

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction aid. It comes complete with the largest database available - 22000 matches over 10 years. The database updates automatically as results come in.
- **PREDICTS** Not just SCOREDRAWS, but ALWAYS, HOMES and NO SCORES.
- **SUCCESSFUL SELEC** guarantees that Poolswinner performs significantly better than chance.
- **ADAPTABLE** Probabilities are given on every fixture - choose as many selections as you need for your bet. The precise prediction formula can be set by the user - you can develop and test your own unique method.
- **SIMPLE DATA ENTRY** All team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce fixture list automatically (see below).
- **DISC/MICRODRIVE COMPATIBLE** Tapes supplied with conversion instructions.
- **PRINTER SUPPORT** Full hard copy printout of data if you have a printer.

PRICE £15.00 (all inclusive)

NOW AVAILABLE

FIXGEN 86/7 AT LAST! No more struggling for hours to get the fixture list into the computer. FIXGEN has been programmed with all English and Scottish fixtures for 1986/7. Simply type in the date, and the full fixture list is generated in a format compatible with Poolswinner. Yearly updates available. **POOLSWINNER with FIXGEN £16.50 (for both)**

COURSEWINNER v3

THE PUNTERS COMPUTER PROGRAM

You can develop and test your own unique winning system by adjusting the analysis formula, or use the program in simple mode. Coursewinner v3 uses statistical analysis of major factors including past form, speed ratings, course statistics, prize money, weight, going, trainer and jockey form etc, etc. It outputs most likely winners, good long odds bets, forecasts, tricast etc. The database includes vital course statistics for all British courses. You can update the database - never goes out of date.

PRICE £15.00 (all inclusive) includes Flat AND National Hunt versions.

ALL PROGRAMS AVAILABLE FOR: AMSTRAD CPC4, AMSTRAD PCW4 (ADD £3.00), ALL BBCs, ALL SPECTRUMS, COMMODORE 64/128, ATARI (486-), SINCLAIR QL. Supplied on tape (simple conversion to disc) - except PCW (on 3" disc) and QL (on microdrive)

Send Cheques/POs for return of post service to ...



selec



phone 24 hrs

SOFTWARE

phone 24 hrs

37 COUNCILLOR LANE, CHEADLE, CHESHIRE. ☎ 061-428 7425

(Send for full list of our software)

COMMODORE 64C CONNOISSEUR'S COLLECTION

The World's best selling computer now comes complete with cassette unit, NEOS mouse and graphics software + chess, monopoly, cluedo, scrabble, Pitmans typing tutor, FREE £50 HOLIDAY VOUCHER
RRP £249.99 WAVE £217.00 (a)

HARDWARE

| | RRP | WAVE |
|--|---------|-------------|
| Amstrad PCW 8256 inc. printer monitor and software | £458.85 | £409.00 (a) |
| Amstrad PCW 8512 inc. printer monitor and software | £573.85 | £513.00 (a) |
| AMSTRAD CPC 6128 (computer and colour monitor) | £399 | £361 (a) |
| BBC Master 128 | £499.00 | £430.00 (a) |
| DMP 2000 Printer inc. free cable for CPC | £169.00 | £151.00 (b) |
| ZX Spectrum plus 48K inc. free s/w | — | £95.00 (a) |

OFFICIAL SPECTRUM UPGRADE

Turn your rubber keyboard Spectrum into a new Spectrum+ inc. Spectrum+ user manual for only £22.75 inc. P&P

EXPANSION PACK

| | |
|---|------------|
| Contains: Interface 1, microdrive, leads and demo cartridge, RRP £99.95 | |
| Excluding user guide | £44.00 (d) |
| Including user guide | £45.00 (d) |

All prices include VAT. Please add carriage indicated as follows: (a) £5.00 (b) £4.00 (c) £3.00 (d) £2.00 (e) £1.00 (f) 50p. Despatched by return of post

W.A.V.E. (mail order)

Walney Audio Video & Electrical
53 Shearwater Crescent, Barrow-in-Furness,
Cumbria LA14 3JP. Telephone: 0229 44753



ATARI SPECIAL CHRISTMAS OFFERS.....

SILICON CENTRE

7 ANTIGUA STREET,
EDINBURGH, EH1 3NH.
PHONE 031-557 4546

SYSTEM 1.... 520STM + 1 Megabyte Double
Sided Disk Drive £439

SYSTEM 2.... 520STM + 1 Megabyte Drive
+ High Res. Mono Monitor £569

SYSTEM 3.... 1040STF + High Res. Mono
Monitor £779

SYSTEM 4.... 1040STF + Std. Res. Colour
Monitor £889

SYSTEM 5.... 1040STF + Medium Resolution
Colour Monitor £949

SYSTEM / PRINTER PACK 6....

520STM + 1 Meg. Drive + MP165 Graphics Printer
(80 Col 165 Draft/75 NLQ.) + Free Cable £639

SYSTEM / PRINTER PACK 7....

520STM + 1 Meg. Drive + MP165 Graphics Printer
(80 Col 165 Draft/75 NLQ.) + Mono Mon.
+ Free Cable £769

SYSTEM / PRINTER PACK 8....

1040 STF + MP165 Graphics Printer (80 Col.
165 Draft / 75 NLQ.) + Mono Mon.
+ Free Cable £999

SYSTEM / PRINTER PACK 9....

1040 STF + MP165 Graphics Printer (80 Col.
165 Draft / 75 NLQ.) + Med. Res. Colour Mon.
+ Free Cable £1149

How to order :-

No more to pay than the price shown. VAT. Included in price. Free Delivery. Free Cable with printer.

Simply send a list of your requirements to the above address - not forgetting your own delivery address - and include your cheque for the system chosen. Or telephone 031-557 4546 with ACCESS/VISA details.

Silicon Centre is a major Atari Authorized Service Centre and all equipment carries a full 1 year guarantee.

An extended Two Year Warranty can be purchased for an additional £29.50 (520ST) or £39.50 (1040ST) Inc. VAT..

Full Range of Software - Books - Disks - Ribbons and alternative printers stocked please ask for details.

Our shop is open Mon - Sat 9.30 - 5.30. Wed half day. Callers are very welcome. Prices correct at time of going to press but subject to change without prior notice.



This advert drawn on Atari ST using EasyDraw and printed on MP165 dot matrix printer



The kid's a hit

Sadly, licensing deals can so often produce programs that don't live up to the products that they're based on. Surprisingly Microdeal's *Karate Kid II* exceeds all expectations.

Obviously this is a martial arts thrash, tied in loosely with the plot of the film, with you cast as Daniel and with the inclusion of two special tests of concentration.

The usual moves are available, punches, flying kicks, kicks to the shin and the like, but all are executed very smoothly and are accompanied by various grunts and yells. Compared to say, Paradox's *ST Karate* the figures are slightly smaller and the speed slightly slower although having said that *Karate Kid II* is fast enough in itself.

The basic premise is this: the land of Myagi's (the old martial arts master) birth has been taken over by the usual collection of power crazed bad guys and he decides to go back and sort them out with the help of his young protegee, Daniel. As the game follows the film you only get one life, so if you lose to an opponent that's your lot.

The first two scenes are set indoors with an opening out to a scenic background. There are five different sorts of scenery including a mountain, seaport, lake, villa/

mountains and pagoda and also five different, and excellent, illustrations on the walls (swallow, fish, elephant, tiger and dragon) all of which are randomly combined every time you play through the first two scenes.

After dispensing of Toshio and Taro in the first two screens, you move on to the first test of concentration where you are magically transformed into Myagi. To pass the test you must catch a fly with a pair of chopsticks. And yes, it's about as easy as you think it would be. The problem, besides the obvious, is that you can only move your chopstick-wielding hand over one quarter of the screen. A nice touch on this scene is how Myagi's eyes follow the fly and what happens when it lands on his nose.

Onwards then to Myagi's ruined garden where, back to being Daniel, you take on Toshio and Taro once more.

Having dispensed with them the second test of concentration arrives when you have to break sheets of ice with your hand. Doing this involves rotating your joystick frenziedly and thumbing the fire button when enough momentum is gained. The best part of this is watching the wonderful animation as Daniel swings into action,



smashing the ice to the accompaniment of a suitable screech.

At last, you meet Chosen in The Final Encounter, one round of combat on a platform with a shadowy and very well designed background, the Castle of King Shohashi. Should you defeat Chosen you reach the ultimate test which consists of standing head to head with him

again and rotating your joystick manically to build up your concentration before he flattens you with a well aimed blow.

An additional plus point to the program is the Midi compatible soundtrack, *The Glory of Love* whilst on the down side when in two player mode the game only ends after player one (Daniel of course) has won three rounds of combat.

If you've seen the film then Microdeal's game is a must. Even if you haven't then the first rate quality of animation and graphics should make you bear *Karate Kid II* in mind when you're in the market for a martial arts game.

Popular Appeal ♦♦♦♦
Duncan Evans



Off the beaten track

Imagine a game that combines elements of flight simulation with outstanding 3D, out-the-window graphics, a war game, and a strategic element in which the computer plays intelligently.

Sounds good? Yeah, I thought so too. And so did Rainbird. Pity the game is so bad.

The game in question is *Tracker* and I'd been looking forward to it for weeks.

The plotline puts some sort of gloss on the usual space scenario – a malevolent intelligence takes over the planet Calibos. Computer-controlled cycloid patrol craft roam the trackways, Calibos's transportation system, shooting down intruding craft.

Your mission is to control a team of up to eight ships in an attempt to knock out the HQ of the enemy at Centrepoint in the heart of the trackway system.

The game operates on three levels. First you can see the entire trackway system showing the positions of your fighters, enemy cycloids, communications nodes, and power points. Four levels of magnification allow you to

zoom in and out on different sectors of the trackways.

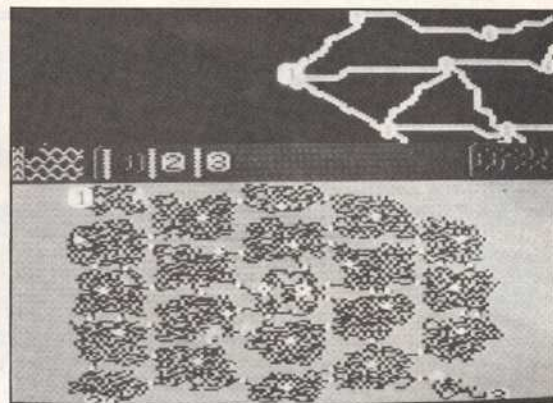
Second, you can set each of your fighters to operate in autopilot mode, rapidly switching between fighters to see how they're progressing.

Third, you can take over individual fighters and fly them through the trackways, fighting cycloids when you encounter them, and bombing power nodes.

In order to achieve your objective of knocking out Centrepoint, you have to secure a number of trackway sectors. You do this by cutting the communications links – just fly over them – and then bomb the power node in each sector. Doing this prevents the cycloids from entering the sector.

Unfortunately, comms and power nodes are re-established if a cycloid flies over them, so you not only have to carry out your sabotage, you have to prevent cycloids carrying out repairs, and watch for cycloids attempting to kill you too.

The end result of all this is that the game is virtually unplayable. Trying to control and protect more than two



fighters at once is difficult in the extreme. Trying to stop cycloids repairing things you've sweated to destroy is even more difficult. And the same controls are extremely complex, requiring joystick and keyboard together.

The 3D fighting sequences are the best, but even these are disappointing. The trackways are simple trenches which give you no room for manoeuvre so taking on a cycloid head-on is simply a matter of blasting away in the hope that you kill it before it kills you.

If a cycloid comes up from behind you're dead nine times out of ten.

The packaging is of the usual Rainbird standard – large box, 60 page play guide and specially-written novella, colour poster and separate

reference guide to the controls.

But where this kind of dressing up was welcome in *Elite*, *The Pawn* and *StarGlider*, it's a complete waste of effort and money in this case.

The novella is terrible anyway. I quote – "Holy Java," he said. "It's a Blarg. Why doesn't he just self-destruct and get it over with?" Good question.

Tracker could have been excellent. Instead, it's too complex, too slow, and the graphics are second-rate.

Popular Appeal ♦

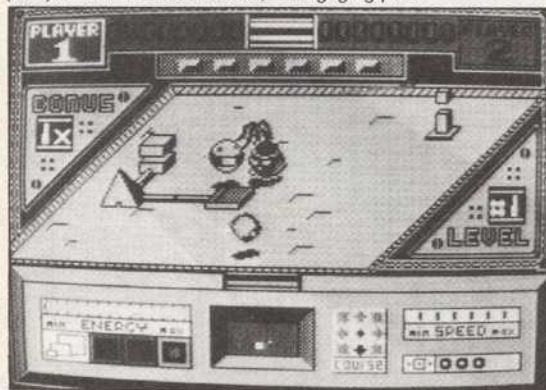
Peter Worlock

Program Tracker Micro
Commodore 64 **Price**
£14.95 (tape) £17.95
(disc) **Supplier** Rainbird,
64-76 New Oxford Street,
London WC1 1PS.

Not so Terrorball

Don't let the fact that Streetwise is Do-mark's arcade label put you off. Its first release,

Orbit the Terrorball is a fine strategy/action hybrid with decent graphics and an engaging plot.



The huge playing area is viewed from a 45 degree angle, and scrolls in eight directions. You control a spherical rescue ship which bounces past an exotic landscape of radar installations, alien plants and sundry obstacles. You use your laser to fend off attacking insectoids and robots, some of which lay deadly mines, while others drop vital energy pods when destroyed.

Your task is to use your map screen and radar display to locate pieces of a crashed spaceship. To do this you have to find a detector module for each piece, then chase it down and destroy its guardian droid, and get the piece back to a central point within ninety seconds before it explodes. Although the scrolling is just a tad jerky, some of the

effects and designs are excellent, especially the molecule-like aliens.

What with retrieving the detectors, collecting bits of spaceship and rescuing astronauts (eight on each level), there's plenty to do, and I can't see anyone completing the game for ages, especially since the baddies react to your tactics by becoming more 'intelligent' as the game progresses.

This game isn't terrorball – in fact it's very good.

Popular Appeal ♦♦♦♦

Chris Jenkins

Program Orbit the Terrorball Micro Sinclair Spectrum **Price** £7.95 **Supplier** Streetwise Software, 204 Worpole Road, London SW20 8PN.

Evesham Micros

The **EVESHAM**
Enhancer 2000

WITH NEW
COMPATIBLE
ROM



FOR COMMODORE COMPUTERS

The Evesham Micros' version of this reliable and compact disc drive has a new ROM to ensure a very high degree of compatibility with disc turbos and protection schemes.

FEATURES

- * HANDLES DISC TURBOS
- * DIRECT DRIVE MOTOR
- * NO OVERHEATING
- * VERY RELIABLE
- * 1 YEAR GUARANTEE
- * COMPACT SIZE
- * HIGHLY COMPATIBLE
- * VERY QUIET

IMPORTANT: ONLY THE EVESHAM MICROS' VERSION OF THIS DRIVE HAS THE NEW ROM THAT WILL HANDLE DISC TURBOS AND LOAD OVER 99% OF PROTECTED SOFTWARE.

THREE PURCHASE OPTIONS

OPTION 1 EVESHAM ENHANCER WITH FREE DRIVE TEST SOFTWARE. ONLY £149.95 **OPTION 2** EVESHAM ENHANCER WITH FREE DRIVE TEST SOFTWARE AND QUICKDISC+ FAST LOAD/SAVE AND DISC UTILITY CARTRIDGE. ONLY £159.95 **OPTION 3** EVESHAM ENHANCER WITH FREE DRIVE TEST SOFTWARE PLUS FREEZE FRAME BACK-UP/UTILITY CARTRIDGE AND 10 DISCS. ONLY £179.95

OTHER COMMODORE EQUIPMENT

FREEZE FRAME... The leading back-up cartridge for the 64/128. Transfer your tape software to disc (including multi-loads) and reload them in less than 40 secs. VERY easy to use. ONLY £39.95

QUICKDISC+... Fast LOAD/SAVE plus utility cartridge. User friendly and includes reset button. ONLY £19.95

NEOS MOUSE/CHEESE... The best mouse for 64 software on tape and disc. ONLY £42.95

1541C DISC DRIVE... See Enhancer for a better offer. ONLY £189.95

POWER PACK... Suit 64 Vic-20. ONLY £24.95

CBM 64 COMPENDIUM PACK Plus joystick and 4 games. ONLY £189.95

CBM 64C CONNOISSEUR'S COLLECTION ONLY £239.95

PRINTER OFFERS

Check out these offers on top quality printers. All the models offered are substantially reduced from the normal high street prices. Prices are fully inclusive of VAT, delivery and lead to suit any computer with centronics parallel printer port, eg. Amstrad, BBC, Einstein, Atari ST, Orc, Dragon, IBM PC or compatible, Memotech or MSX. For the CBM 64/128 we supply a user port centronics cable. For Spectrum or QL owners an appropriate interface is supplied for an extra £20.00, for 8-bit Atari models an interface is supplied for an extra £30.00. If you require a detailed print sample of any model please send a S.A.E. stating your requirements. Delivery is by insured receipted delivery and orders are despatched the next working day after receipt, provided we have stock.

PANASONIC KXP 1080

Now an even better price for this popular printer. A huge number of print options can be achieved, the switch selectable NLQ being available in all modes except sub/superscript. The quality of the NLQ is far better than other similarly priced printers. Features include 100 cps draft mode, 20 cps NLQ, friction and tractor feed, Epson compatibility and easy change long life ribbon.

ONLY £179.95

MICRO P. MP165

The best NLQ of any printer in the price range? Most people who see it think so. This printer has proved very, very popular over the last year and even more so at this super competitive price. An unusually high draft speed of 185 cps and its superb switch selectable NLQ at 35 cps make this the class winner for performance per pound. Standard features include friction and tractor feed, 2K buffer, Epson compatibility, quiet operation and full graphics capability. Must be the highest spec available for the price.

ONLY £219.95

STAR NL10

New high specification printer just released. All the usual features PLUS easy front panel selection of most modes, semi-automatic, single sheet feed, double and quad height characters AND plug in interface cartridges. Choose between standard centronics parallel, IBM, or Commodore. Ideal for Commodore owners who want the convenience of a CBM ready printer but may wish to change later, just buy a new interface cartridge for £39.00. When reviewing this model in a group test with the Epson LX30, Citizen MSP-10C and others, What Micro magazine referred to it as "the Rolls-Royce of these printers". A single sheet feeder is available for £63.00.

OUR PRICE: ONLY £259.00
(state which cartridge required)

AMSTRAD DMP 2000 £159.00

JUKI 6100 £289.00

MICRO P. MP200 £299.00

MICRO P. MP201 (132 column) £375.00

All prices include P&P and VAT. Send cheque, Postal Order or Credit Card No. Credit Card orders accepted by phone. Callers welcome. Wide range of goods stocked. Trade enquiries welcome. European orders sent price as advertised. Outside Europe £2.00 for airmail. Mail order to Evesham Shop please.

EVESHAM MICROS

BRIDGE STREET, EVESHAM,

WORCS WR11 4RY.

Tel: 0386 41989

MICRO CENTRE

1756 PERSHORE ROAD,

COTTERRIDGE, BIRMINGHAM.

Tel: 021-458 4564

ALL OFFERS SUBJECT TO AVAILABILITY

ATARI ST

| | | | |
|-------------------------|---------|---|---------|
| 1040 STF Mono | £799.00 | 520 STM | £335.00 |
| 1040 STF Colour | £999.00 | 520 STM c/w SF354 | |
| Comana 1mb single drive | £155.00 | disc drive | £449.00 |
| Comana 2mb double drive | £255.00 | 520 STM c/w SF354 and Phillips monitor CM8501 | £649.00 |

with all Atari S.T.s
Don't forget all prices include VAT and carriage

FACULTY ENTERPRISES

NEW RELEASES

MSX

AVENGER (GREMLIN) £9.95

SPITFIRE 40 (MIRRORSOFT) £9.95

DYNAMITE DAN (MIRRORSOFT) £9.95

DAMBUSTERS (US GOLD) £9.95

WORLD CUP SOCCER (ACKOSOFF) £9.95

FIVESTAR (BEAUJOLLY) £9.95

MSX CLASSICS (FOUR TITLES) £9.95

ZOOT £2.99

PLEASE NOTE NEW ADDRESS:

7A SHERWOOD CRESCENT

MARKET DRAYTON

SHROPS. O630 57465

MAIL ORDER TO:

43 MANOR ROAD

ENFIELD, MIDDX.

EN2 0AN

ANCIENT & MODERN

Unit 111 (Rear), Washington Road, West Wilts Trading Estate, Westbury, Wilts

| SPECTRUM | isp | ASM | COMMODORE 64 | isp | ASM | BBC | isp | ASM |
|---------------------------|-------|-------|-----------------------|-------|-------|--------------------------|-------|-------|
| £ | £ | £ | £ | £ | £ | £ | £ | £ |
| They Sold A Million 3 | 0.95 | 0.75 | Fist II | 0.95 | 0.75 | Waterloo | 0.95 | 4.99 |
| Papery | 7.99 | 4.99 | They Sold A Million 3 | 0.95 | 0.75 | Dambusters (US Gold) | 0.95 | 2.99 |
| Light Force | 7.99 | 4.99 | Highlander | 0.95 | 0.99 | Scrabble | 14.95 | 9.95 |
| Great Escape | 7.99 | 4.99 | Golden Rider | 7.95 | 4.99 | Steve Davis Snooker | 7.95 | 4.99 |
| Golfwin | 7.99 | 4.99 | Infiltrator | 0.95 | 0.75 | Miss Office II | 14.95 | 9.95 |
| Infinitas | 7.95 | 4.99 | Genie Killer | 0.95 | 0.99 | Castle Secret | 13.95 | 4.99 |
| Revolution | 7.95 | 4.99 | Tom Bozing | 7.95 | 4.99 | AMSTRAD | | |
| It's A Knockout | 7.95 | 4.99 | Bobby Bawling | 0.95 | 0.75 | The Micro System | 15.00 | 8.99 |
| Conqueror | 7.95 | 4.75 | Knight Rider | 0.95 | 0.99 | Laser Blast (disc) | 14.95 | 9.99 |
| Marital | 0.95 | 0.75 | Astoria | 0.95 | 0.75 | Laser Genesis (disc) | 14.95 | 9.99 |
| Ataris | 7.95 | 4.99 | Golden Killer | 14.95 | 9.99 | Nick Faber (disc) | 0.95 | 4.99 |
| Dragon's Lair | 7.95 | 4.75 | Time Tunnel | 0.95 | 0.99 | Quado | 0.95 | 5.99 |
| Big 4 (Quartz) | 0.95 | 0.75 | Revs | 14.95 | 9.99 | Adventure Writing System | 15.95 | 9.99 |
| War | 7.95 | 4.99 | Jet Set Willy 2 | 7.95 | 4.99 | Microzone Draw (disc) | 24.95 | 14.99 |
| Highlander | 7.95 | 4.99 | The London | 0.95 | 0.99 | Micro | 0.95 | 4.99 |
| Chin | 7.95 | 4.99 | The London | 0.95 | 0.99 | MSX | | |
| Titanium | 0.95 | 0.99 | Quaker Minus One | 0.95 | 0.99 | COMMODORE 16 | | |
| Fat Wars | 0.95 | 0.99 | Zin Sale Ben | 0.95 | 0.99 | Legionnaire | 7.95 | 4.99 |
| Max Headroom | 0.95 | 0.99 | Murder On The Zindred | 11.95 | 7.99 | Diante 'n' Galibus | 7.95 | 4.99 |
| Pythons | 0.95 | 0.99 | 20 Games | 0.95 | 0.99 | Saboteur | 0.95 | 0.75 |
| Amazing Women | 0.95 | 0.99 | Battle Of The Bells | 0.95 | 0.99 | MSX | | |
| Medes of Ysador | 7.95 | 3.99 | Poi Warrior | 0.95 | 0.99 | Hyperbits 1 or 2 | 14.95 | 7.50 |
| Regents In Broad Street | 7.95 | 2.99 | Laser Compiler | 10.95 | 11.99 | Kalosh's Tennis | 14.95 | 7.50 |
| Seaflow Of The Shroton | 14.95 | 4.99 | Laser Basic | 14.95 | 0.99 | Trek's 7 Field 1 or 2 | 14.95 | 7.50 |
| Fourth Protocol | 7.95 | 4.99 | Machine Code Tutor | 14.95 | 0.99 | Kosmos Soccer | 14.95 | 7.50 |
| Arms | 0.95 | 0.99 | Adventure Course | 0.95 | 0.99 | Robbo | 14.95 | 7.50 |
| Graphic Adventure Creator | 22.95 | 14.99 | Mandatory Companion | 14.95 | 0.95 | Kana Database | 19.95 | 11.99 |

All prices include P & P. Overseas add 90p per tape please. Thousands of titles in stock. Please send S.A.E. for full list stating machine. Lists also available for Electron, Dragon, Atari, Vic 20.

Cheques/POs payable to:

Ancient & Modern

Unit 111 (Rear), Washington Road, West Wilts Trading Estate, Westbury, Wilts.

PROGRAMMERS WANTED

A number of assembly language programmers are required to work with us on new 32-bit processors. We are especially looking for those with experience in graphics and/or language design, but have opportunities for all good assembly language programmers. The vacancies are suited to those who are genuinely interested in very powerful micros (and high technology in general) and the possibilities opened up by such machines.

Computer Concepts has been established for 6 years and has a reputation for producing only the highest quality software. We have a small team of quality programmers who work in an informal and relaxed atmosphere from a large mansion in the Hertfordshire countryside, but within easy reach of London.

Salaries depend upon experience and ability. High rewards are possible for those with the necessary skills and enthusiasm.

For more details contact:

**Computer Concepts,
Gaddesden Place,
Hemel Hempstead,
Herts HP2 6EX
(0442) 63933**

Shining on in Starglider

It's difficult to work out what to do with the CPC version of *Starglider*. If you compare it with the standard 8-bit space operas it comes off very well, but there's always the nagging feeling that it's completely outclassed by the original version on the Atari ST.

The game itself is fairly simple – a lot simpler than the absurd novella attached to it would have you believe.

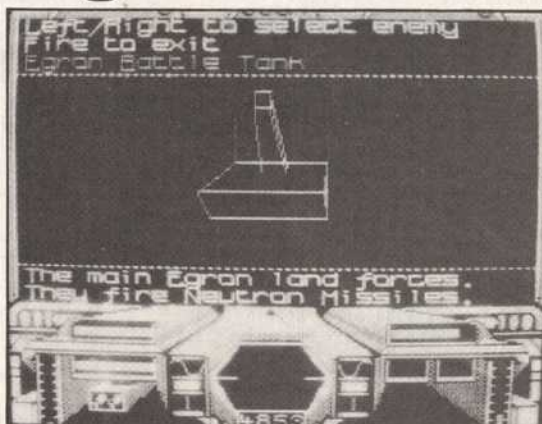
Your planet, says the script, has been invaded by an alien race which has fashioned its ships into the shape of a sort of giant intergalactic seagull to get past your Greenpeace-oriented (Save the Stargliders, man) planetary defences. You're piloting the last defence ship and must – etc, etc.

Once you've got the script out of the way you find the game boils down to 'if it

moves, shoot it' with refuelling and rearming options attached. As such it's not at all bad on the Amstrad – you're placed on a planet surface and presented with a variety of shapes to shoot, and it's at least as entertaining as other 'state of the art' games you'll find on the machine.

But comparing the Amstrad game with the ST version tells you a lot more about both implementations. The scripts are equally basic, but the graphics on the ST are better – albeit not as good as they ought to be – and compared to the ST's, the Amstrad's sound is primitive, to say the least.

The point here is that the ST allows the same game to be given a more elaborate treatment. It's still the same game, it just gives the impression it isn't. Not that you should let that put you off – if



you want a good space opera for the Amstrad, *Starglider* is an excellent buy – it's just a lot more spectacular on the ST.

Popular Appeal ♦♦♦
John Lettice

Program Starglider Micro
Amstrad CPC Price
£14.95 (tape) £19.95
(disc) **Supplier** Rainbird
Software, 74 New Oxford
Street, London WC1A
1PS.

Wearing Warrior

Sequelitis is successful as rarely in computer games as it is in films; the temptation to cash in on a proven success again and again tends to lead to dull formula productions rather than a string of goodies. If you saw *Battle for the Planet of the Apes* you'll know what I mean.

In the case of *Nexus*, the temptation to produce a follow-up to *Beyond's Psi Warrior* should have been resisted. As with the original, you control a Silver Surfer character, skimming through an underground complex featuring causeways, neutral barriers, slopes and accelerators. Armed with the latest laser-phaser-photon-zapper thingy, you must fight off octopoid guardians and amorphous mind-monsters in order to penetrate to the bottom of the maze.

At the bottom of the screen is a map of the current level, giving your position and warning of enemies. That aside and some well-designed puzzle elements, *Warrior 2* is pretty similar to the

original *Psi Warrior*.

When *Beyond's Psi Warrior/Psytron* programs originally appeared, they set new standards for graphic design

and animation. *Warrior 2* doesn't exceed that standard, and now looks merely average. If you own *Psi Warrior*, don't bother; if you don't, check it out, but don't let the distinctive Nexus pencil-box packaging fool you into thinking that you're getting something brand new and exciting.

Popular Appeal ♦♦♦
Chris Jenkins

Program Warrior 2 Micro
CBM 64 Price £9.95
Supplier Nexus Productions,
ABS House, 30 High
Street, Beckenham, Kent
BR2 0XW.

Kick-off time on Spectrum

One of the problems with writing a game across a whole range of formats is that there is a tendency to design it for the lowest common denominator, hoping to bolt extra stuff on for the more capable machines. The most celebrated example of this is first *Star's Superman* (coming via *Beyond* in this country) and although *Footballer of the Year* is by no means in this category of disaster, it could have been a whole lot better than it's turned out – on Spectrum at least.

In this strategy style game you take on the role of a young footballer, fresh to the game, with aspirations as large as Ian Rush's pay cheque. But a starting stake of £500 and an income of

£75 per week doesn't go far, even in the 4th Division.

You get higher status (and are therefore attractive to better teams) by scoring goals – this is done by using 'Goal Cards' (you start off with ten and can buy more as you go along, or get awarded extra by chance) giving you one to three scoring attempts in the arcade sequence, a pathetic representation of a goalmouth scramble or a penalty attempt.

Sure, the game has some neat frills, like a teleprinter printing out the team's results, but for a product that must rely on some realistic strategy to give it any credibility – it fails.

It took four seasons for Tarquin to make it to the rank of *Footballer of the Year* (a

long afternoon incidentally) achieved largely through accumulating many Goal Cards and pots of money by repeatedly selecting the 'Incident' option (the equivalent of *Monopoly's* Chance square).

Possibly entertaining and easy enough for a very young player – ten and under I should think – no way is this going to hold anyone that was expecting an improvement on *Football Manager*.

Popular Appeal ♦♦
John Cook

Program Footballer of the Year Micro Spectrum
(others to follow) Price
£9.95 **Supplier** Gremlin
Graphics, Alpha House, 10
Carver Street, Sheffield S1
4FS.

FRONT PAGE

FOR THE QL
BY
GAP
SOFTWARE

DESK-TOP PUBLISHING
FOR THE SINCLAIR QL

HERE IS A SUMMARY OF THE FACILITIES:

- 800x800 pixel drawing area
- Supports all QL text sizes.
- Alternative font.
- Very simple text entry.
- User-defined graphics on 8x8 square.
- Freehand graphics.
- Cut and paste.
- Load and save full and part screens.
- Up to 80 lines and 133 columns.
- Load your own screens.
- Supports floppies, ramdisks, etc.

This advertisement
was prepared with
FRONT PAGE

FRONT PAGE
...is supplied as
two cartridges and
a user manual. It
is complete, ready
to use. Now it is
possible to try
desktop publishing
for yourself for
only
£22-50!

Of course, once you
have created your
masterpiece, you
will want to print
it. FRONT PAGE has
a built-in routine
to print. It allows
Epsons and Epson-
compatibles to do a
full A4 page. And
you can customise
it for your own
system, as well!

Yes, the QL can now do
desktop publishing, and
can do it economically!

FRONT PAGE allows you to
do something USEFUL with
your QL. Design your own
artwork, produce your
Company newsletter, make
up leaflets quickly.

AND DO IT ECONOMICALLY!

FRONT PAGE is:

FULLY MENU DRIVEN
SELF-CONTAINED
VERY EASY TO USE
AND ECONOMICAL

REMEMBER WHERE YOU READ
IT FIRST-ON FRONT PAGE!

GAP SOFTWARE, 17 ST. JOHN'S TCE, LONDON, E7 8BX: 01-552-5452

P&P INCLUDED FOR UK AND EUROPE. ADD £1-00 FOR OUTSIDE EUROPE

COMMODORE AMIGA

only

£1100 inc VAT
(£956.52 + VAT)

This package includes:

- Commodore Amiga Computer
- 512K RAM
- Mouse
- Single Disc Drive
- Colour Monitor
- FREE Software
- 12 month maintenance contract
- FREE Courier Delivery in UK if required

Phone or write for more details or to arrange a demonstration.

Also available:

Atari 520ST-MS from £440
Atari 1040ST-Fs from £900
Sinclair QLs from £100

10% off all software and hardware if ordered with a computer

AMIGA SOFTWARE

| | | | | | |
|------------------------|-------|--------------------------|-------|-----------------|-------|
| Archon | £27 | The Pawn | £23 | Amiga Images | £64 |
| Archon II | £27 | 7 Cities of Gold | £23 | Text Craft | £60 |
| Die on One | £27 | Stitch-takers Guide | £27 | M6 Amiga Word | PHONE |
| Muscle Madness | £27 | Leather Goddess | £27 | M6 Amiga File | £92 |
| Arctic Fox | £27 | Adventure Constr. Set | £27 | M6 Amiga Ledger | £92 |
| Skyfox | £27 | Hacker | £23 | Dynamic CAD | £450 |
| Borrowed Time | £23 | Mindshadow | £23 | Amiga Draw | £145 |
| Ladderboard | £23 | Instant Music | £27 | Superbase | £135 |
| Little Computer People | £35 | Music Studio | £31 | *SICKA | £85 |
| Discovery Base | £36 | Deluxe Paint | £135 | Pascal | £83 |
| Arms | £27 | Deluxe Print | £83 | Lattice C | £120 |
| Deep Space | £32 | Sortbox | £35 | Cambridge Linc | £131 |
| Brattacus | £31 | Deluxe Video constr. Set | PHONE | AC BASIC | £285 |
| Super Huey | PHONE | GraphicArt | £50 | AC Fortran | £285 |

AMIGA HARDWARE

| | | | | | |
|-----------------------------|-------|------------------------------|-------|------------------------------|------|
| 20MB Hard Disc | £1719 | Canon PJ1080A Colour Printer | £330 | 250K-512K Memory Upgrade | £115 |
| 40MB Hard Disc | £2927 | Amiga Graphic Tablet | £570 | Amiga Printer Lead | £20 |
| 2MB Memory Upgrade | £860 | 250K Amiga 1 disc | £1010 | Citizen 1200 printer + lead | £360 |
| Add on 3.5" disc drive | £270 | 250K Amiga 2 disc | £1250 | Citizen MSP20 printer + lead | £550 |
| 10 x 3.5" diskettes | £30 | 512K Amiga 1 disc | £1100 | Amiga Midi Interface | £40 |
| 40 x 3.5" lockable disc box | £13 | 512K Amiga 2 disc | £1320 | Amiga Graphic Tablet | £570 |

M.P.C. SOFTWARE

72 Julian Road, West Bridgford, Nottingham NG2 5AN
Telephone 0602 820106

All prices correct at time of going to press E&O

HSV COMPUTER SERVICES LIMITED

DISKETTES

UNBRANDED LIFETIME GUARANTEE

| Quantity | 10 | 20 | 30 | 40 | 50 | 100 |
|----------------------|-------|-------|-------|-------|-------|--------|
| 3 1/2" SS/DD 135 TPI | 15.50 | 30.50 | 45.50 | 60.50 | 75.50 | 149.50 |
| DS/DD 135 TPI | 17.50 | 34.50 | 51.50 | 68.50 | 85.50 | 169.50 |
| 5 1/4" SS/DD 48 TPI | 5.95 | 11.50 | 16.95 | 22.50 | 27.95 | 54.95 |
| DS/DD 48 TPI | 6.95 | 13.50 | 19.95 | 26.50 | 32.95 | 64.95 |
| DS/QD 96 TPI | 7.95 | 15.50 | 22.95 | 30.50 | 37.95 | 74.95 |

All disks supplied in cardboard boxes
with write protect tabs, labels and
envelopes and come with our no
quibble money back or replacement
guarantee.

AMSTRAD

AMSOFT/MAXELL 3" CF2 1 - £3.65
5 - £17.50 10 - £31.95

CREDIT CARD HOT LINE
(0256) 463507



ALL OUR PRICES INCLUDE CARRIAGE & VAT
NO EXTRAS TO PAY!

Also best prices for:
Disk Boxes, Ribbons, Paper, Labels

HSV COMPUTER SERVICES LIMITED
40-42 New Market Square, Basingstoke, Hants RG21 1HS

HSV

Error Trapping

J Collins

This routine for the Spectrum is an 'On error goto' facility, starting at 64000 and is 77 bytes long. Once run, and debugged, the listing

will save the machine code to tape using a filename specified by the user.

To use the routine in your own program add the following lines at the beginning of your own program. Line no. is the line number that will be jumped to when an error is encountered.

2 Load "filename" Code

4 Poke 64077, line no. - (256*Int(line no./256))

6 Poke 64078, line no./256

8 Poke 64079,1

10 Randomize 64000

The number in line eight is the statement that the routine jumps in the specified line, on encountering an error.

```

1 CLS : PRINT "Generating code - Please wait"
5 LET chk=0
10 FOR n=64000 TO 64076: READ a: POKE n,a: LET chk=chk+a: NEXT n
15 IF chk<>7749 THEN PRINT "Error in data - recheck": STOP
20 INPUT "Filename ? "; LINE a$: PRINT "Saving code ....": SAVE a$CODE 64000,77
25 INPUT "Verify Y/N ? "; LINE B$: IF B$="Y" THEN PRINT "Verifying code ...": VERIFY a$CODE 64000,77
100 DATA 33,255,249,34,178,92,17,16,250,42,61,92,115,35,114,201,205,84,31,48,251,58,58,92,198,49,254,58,56,2,198,7,50,129,92,62,255,50,58,92,42,77,250,34,110,92,58,79,250,50,112,92,42,69,92,34,176,92,42,89,92,0,0,0,205,82,22,213,225,54,232,35,54,13,195,206,18
    
```

Programming: Amstrad CPC

Semblem

Robert Osborne

This week sees the final part of the assembler/disassembler listing.

When in assembler mode note that for relative jumps the address to be jumped to can be entered as a number in the range 0-255, which would have the

desired effect.

To save assembled machine code, break out of the program and use normal Basic routines. Alternatively you could add your own loading and saving routines to the program.

```

840 DATA JR NC,LD SP,"LD (@),A",INC SP,I
NC (HL),DEC (HL),LD (HL),SCF,JR C,"ADD H
L,SP","LD A,@",DEC SP,INC A,DEC A,LD A
,CDF
850 DATA B,C,D,E,H,L,(HL),A
860 DATA "ADD A,", "ADC A,", "SUB A,", "SBC
A,", "AND ", "XOR ", "OR ", "CP "
870 DATA "RET NZ",POP BC,JP NZ,"JP ",CAL
L NZ,PUSH BC,ADD A,RST 00,RET Z,RET,JP Z
,RLC B,CALL Z,CALL,ADC A,RST 08,RET NC
880 DATA POP DE,JP NC,"OUT (@),A",CALL N
C,PUSH DE,SUB A,"RST 10,C000",RET C,EXX
,JP C,IN A,CALL C,INVA,SBC A,RST 18
890 DATA ROM E0,POP HL,JP PO,"EX (SP),HL
",CALL PO,PUSH HL,AND,RST 20,RET PE,JP (
HL),JP PE,"EX DE,HL",CALL PE,INVA,XOR,RS
T 28
900 DATA RET P,POP AF,JP P,"DI ",CALL P
,PUSH AF,"OR ",RST 30,RET M,"LD SP,HL",JP
M,"EI ",CALL M,INVA,"CP ",RST 38
910 PEN 2:PRINT:PRINT "Disassembler."
920 PRINT "Start>":PEN 1:INPUT "A,A#
930 PEN 2:PRINT "Finish>":PEN 1:INPUT "
",B#:PEN 2
940 IF VAL(B#)<VAL(A#) THEN PRINT "Finis
h is too low.":GOTO 920
950 CLS:P=VAL(A#)
960 J=0
970 PEN 2:X=PEEK(P)
980 A$=MNE$(X)
990 PRINT "HEX$(P) "HEX$(X); " ";
1000 IF TYPE(X)=2 THEN GOTO 1140
1010 FOR I=1 TO LEN(MNE$(X))
1020 IF MID$(MNE$(X),I,1)="#" THEN GOTO
1170
1030 NEXT I
1040 IF MID$(MNE$(X),1,2)="JR" OR MID$(M
NE$(X),1,2)="DJ" THEN GOTO 1210
1050 IF X=&36 OR X=&6 OR X=&E OR X=&16 OR
X=&1E OR X=&26 OR X=&2E OR X=&3E OR X=&
C6 OR X=&CB OR X=&CE OR X=&D3 OR X=&D6 O
R X=&DB OR X=&DE OR X=&EE OR X=&EE OR X=
&FE OR X=&FE THEN GOTO 1240
1060 X$=MNE$(X)
1070 PEN 1:PRINT TAB(21);X$:PEN 2:P=P+1:
J=J+1:X$=""
1080 IF J=18 OR P>VAL(B#) THEN GOTO 1090
ELSE GOTO 970
1090 IF P>VAL(B#) THEN GOTO 230
1100 PRINT TAB(10)"Press 'C' to continue
";
1110 A$=INKEY$:IF A$="" THEN 1110
1120 IF UPPER$(A$)="C" THEN J=0:CLS:GOTO
970
1130 CLS:GOTO 220
1140 C1=PEEK(P+1)
1150 C2=PEEK(P+2)
1160 PRINT HEX$(C1); " ";HEX$(C2);:X$=MNE
$(X)+","&HEX$(C2)+HEX$(C1):P=P+3:GOTO 1
070
1170 C1=PEEK(P+1):C2=PEEK(P+2)
1180 PRINT HEX$(C1); " ";HEX$(C2);TAB(21)
1190 X$=LEFT$(MNE$(X),I-1)+"#"+HEX$(C2)+
HEX$(C1)+MID$(MNE$(X),I+1)
1200 P=P+2:GOTO 1070
1210 PRINT HEX$(PEEK(P+1));
1220 IF PEEK(P+1)<127 THEN C1=P+PEEK(P+1)
ELSE C1=P-(256-PEEK(P+1))
1230 X$=MNE$(X)+","&HEX$(C1):P=P+1:GOTO
1070
1240 C1=PEEK(P+1)
1250 PRINT HEX$(C1);
1260 X$=MNE$(X)+","&HEX$(C1)
1270 P=P+1:GOTO 1070
    
```

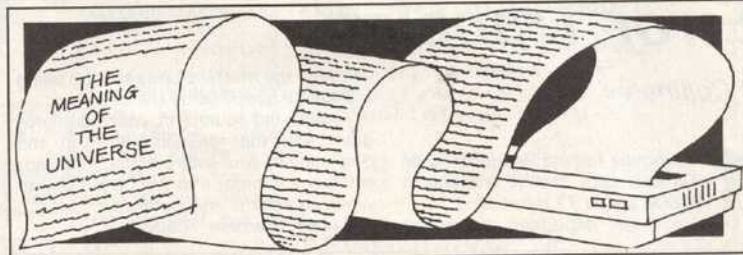
Formatted Printing

David Stewart

Using\$ is a function for the QL which returns a number given to it in a neat tabulated form. It is most useful in programs with a great deal of numeric output which needs to be correctly tabulated.

The function only requires two parameters, one to inform the computer of the form the output will take and the actual number.

This first parameter takes the form of a



string of any alphanumeric characters separated by a point. The characters before the point represent integer places (maximum of six), and the ones after, decimal places (maximum of five).

Any number which exceeds the specified places is returned unformatted. If the

number's decimal places exceed those catered for it will be rounded off.

An example of the syntax is as follows:

```
A$ = Using$ ("*****.*", 1065.897665). This would return "1065.898" as the value of A$.
```

```

10 INPUT #0:"FORMAT " ;FORM$;" NUMBER " ;no;"
20 PRINT USING$(FORM$,no)
30 GO TO 10
29997 :
29998 REMark David Stewart
29999 :
30000 DEFine FunctIon USING$(format$,number)
30010 LOCAL n,no,intp1,decpl,int$,dec$,shift,r$,sign:no:number
30020 IF format$="" THEN RETURN no
30030 FOR n=1 TO LEN(format$)
30040 IF format$(n)='.' THEN GO TO 30070
30050 NEXT n:n=n+1
30060 no=INT(no+.5)
30070 intp1=n-1:decpl=LEN(format$)-n:IF intp1>6 THEN intp1=6
30080 sign=-2*(no<0)+1:no=ABS(no)
30090 IF LEN(INT(no))>6 OR LEN(INT(no))>intp1 THEN RETURN no*sign
30100 IF decpl>5 THEN decpl=5

```

```

30110 int$=INT(no):dec$=no-INT(no)
30120 dec#=INT(dec#*10^decpl+.5):dec#=dec#/10^decpl
30130 IF dec#=1 THEN int$=int$+1:dec$=0:IF LEN(int$)>6
OR LEN(int$)>intp1 THEN RETURN sign*int$
30140 r$=FILL$(" ",intp1-LEN(int$)):IF sign=-1
THEN r$=r$*"-":ELSE r$=r$*"+":END IF :r$=r$+int$
30150 IF LEN(dec$)<4 THEN GO TO 30200
30160 IF dec$(LEN(dec$)-2)='E' THEN
30170 shift=ABS(dec$(LEN(dec$)-1 TO))
30180 dec$=FILL$("0",shift)&dec$(1 TO LEN(dec$)-3)
30190 END IF
30200 IF LEN(dec$)<2 THEN decpl=0:GO TO 30220
30210 dec$=dec$(2 TO)
30220 IF decpl=0 THEN r$=r$*","&dec$
30230 RETURN r$
30240 END DEFine

```

Programming: BBC

Memory Edit

Mark Gidley

The following BBC/Electron program allows the user to scroll through memory displaying the

address, hex code and Ascii values.

On first running the program the desired starting location should be entered in hex.

Using the cursor keys scrolling can be up or down. To edit a byte of memory

use the left/right cursor keys then press the appropriate letter on the keyboard.

To quickly jump to another part of the memory press *Escape* then enter the new value. Pressing *Escape* for a second time results in an exit from the program.

```

10REM *** Memory List/Edit ***
20REM *** Written by ***
30REM *** Mark Gidley 1986 ***
40:
50REM Page can be set to any
60REM value from :
70REM &E00 to &7600
80:
90MODE7:VDU23,8202,0;0;0;.:PROCstart:a
$=CHR$131:PRINTAB(0,0);a$:"ADDR ";CHR$1
48:" , , , , , ";CHR$134:"HEX CODE";CHR$148:"
" , , , , , ";a$:" ASCII":*FX4,1
100VDU28,0,24,39,2:Y%=0:ON ERROR PROCs
tart:GOTO100
110ch=FALSE:REPEAT:PROCa

```

```

120Y%=Y%+1:IF Y%=22 THEN PROCedit
130I%=I%+8:UNTIL I%&FFF
140I%=0:GOTO110
150:
160DEFPROCchex:IF ch=FALSE THEN FORJ%=0
TO7
170IFch=TRUE PRINTTAB(x%+1,10);
180mem%=?(I%+J%):PRINT,"00";:IF mem%&
F THEN VDUS,8 ELSE VDUS
190PRINT;"mem%:" ";:IFch=TRUE ENDPROC
ELSE NEXT:ENDPROC
200DEFPROCaddr:PRINTTAB(1,Y%);"0000";:
IF I%&10 THEN X%=4 ELSE IF I%&FF THEN X%
=3 ELSE IF I%&FFF THEN X%=2 ELSE X%=1
210PRINTTAB(X%,Y%);~I%:" ";:ENDPROC

```

```

220DEFPROCascii:PRINTTAB(32,Y%);:FORJ%
=0 TO7:mem%=? (I%+J%):IF mem%>31 AND mem%
<127 OR mem%>160 PRINT;CHR$(mem%);:NEXTE
LSE PRINT;";":NEXT
230ENDPROC
240DEFPROCedit:x%=6:ON ERROR CLS:PROCst
art:GOTO100
250PROCp:key=GET
260*FX15,1
270IF key=136 PROCleft
280IF key=137 PROCright
290IF key=139 PROCup
300IF key=138 PROCdown
310IF key<135 OR key>140 THEN PROCchan
ge
320GOTO250
330DEFPROCw:t=TIME:REPEAT UNTIL TIME>t
+10:ENDPROC
340DEFPROCd:PRINTTAB(x%,10);" ";TAB(x%
+3,10);" ":ENDPROC
350DEFPROCp:PRINTTAB(x%,10);"[";TAB(x%
+3,10);"]":ENDPROC
360DEFPROCleft:PROCd:x%=x%-3:IF x%<6 T
HEN x%=27:ENDPROC ELSE ENDPROC
370DEFPROCright:PROCd:x%=x%+3:IF x%>27

```

```

THEN x%=6:ENDPROC ELSE ENDPROC
380DEFPROCup:I%=I%+&B0:IF I%<0 THEN SO
UND1,-15,150,1:I%=I%+&B0:ENDPROC
390Y%=0:PROCd:VDU28,0,23,39,2:PRINTTAB
(0,0);CHR$11:PROCa:PROCp:I%=I%+&A8:VDU28
,0,24,39,2:ENDPROC
400DEFPROCdown:I%=I%+8:IF I%>&FFF8 THE
N I%=0
410Y%=21:PROCd:PRINTTAB(0,21);CHR$10:P
ROCa:PROCp:ENDPROC
420DEFPROCa:PROCaddr:PROChex:PROCascii
:ENDPROC
430DEFPROCchange:J%=(x%/3)-2:pos%=I%
-&58:pos%=pos%+J%:?pos%=(key):PROCc:x%=x
%+3:IF x%>27 THEN x%=x%-3:PROCd:x%=6:PRO
Cdown:ENDPROC ELSE x%=x%-3:PROCright:END
PROC
440DEFPROCc:Y%=10:I%=I%+&58:PRINTTAB(7
,10);:ch=TRUE:PROChex:PROCascii:ch=FALSE
:PROCp:I%=I%+&58:ENDPROC
450DEFPROCstart:ON ERROR END
460PRINT'CHR$131:"Start address :";CH
R$134;"&":INPUT""$s:CLS:I%=EVAL("&"+A$)
:IF I%<0 OR I%>&FFFF THEN CLS:GOTO460 EL
SE ENDPROC

```

Programming: Commodore 64

Astro Load

P R Brain

Astro Load is a turbo tape program which occupies memory from \$CC00 to \$D000 (52224-53248).

If an *Illegal Quantity Error in 50* is reported then use the following line to find out where the mistake is.

```
?100+(N*260):"to":350+(N*260)
```

To run the machine code enter Sys

52855.

The commands that Astro Load accepts are as follows, where "Fn" is the filename.

@S"Fn" saves the program currently in memory.

@S"Fn" (address) saves the current program but when reloaded control jumps to the machine code at the address specified.

@S"Fn",start,end saves the data between the addresses start and end.

@S"Fn" (address),start,end is as above but after loading control jumps to code at

address specified.

@C"Fn" will convert a standard loading program (unprotected) to fast load. Firstly the program to be converted is loaded. Then must insert a blank tape and press F1.

@C"Fn" (address) copies as above but when reloaded jumps to address.

To save a fast loading version of Astro Load enter -

```
@S"Astro-load"(53241),52224,53248
```

Then type in New to avoid an out of memory error.

READY.

```

0 REM *****
5 REM * ASTRO-LOAD FOR THE C-64 *
10 REM * WRITTEN BY PAUL BRAIN *
15 REM * NOV. 1986 BRISTOL *
20 REM *****
25 PRINTCHR$(147);TAB(5)"PLEASE WAIT WHILE DATA IS READ"
30 S=52224:E=53248:N=0
35 T=0
40 FORL=1TO25
45 FORJ=0TO9:READY:T=T+V
50 POKES+J,V:NEXTJ
55 S=S+10:IF S>E THEN S0
60 NEXTL:READC
65 IFT=CTHENN=N+1:GOTO35
70 X=100+(N*260):Y=X+250
75 PRINT"ERROR IN DATA BETWEEN LINES";X;"&";Y:END

```

Programming: Commodore 64

```
80 READC:IFT<>CTHEN70
90 PRINTCHR$(147);"DATA CORRECT --- SYS 52855 TO INITIALISE"
100 DATA160,0,185,43,0,153,172,0,200,192
110 DATA4,208,245,169,0,133,193,32,56,248
120 DATA169,153,141,145,204,169,172,141,175,204
130 DATA169,11,141,17,208,120,169,5,133,1
140 DATA169,124,141,254,255,169,204,141,255,255
150 DATA169,152,141,250,255,169,204,141,251,255
160 DATA160,127,169,129,140,13,220,140,13,221
170 DATA141,13,220,173,13,221,173,13,220,169
180 DATA0,133,2,170,168,202,208,253,136,208
190 DATA250,169,25,141,14,220,169,8,133,163
200 DATA169,2,133,189,169,80,133,251,88,165
210 DATA2,240,252,169,55,133,1,32,147,252
220 DATA32,132,255,96,72,152,72,138,72,32
230 DATA0,205,208,13,6,189,198,163,208,7
240 DATA169,8,133,163,76,195,204,104,170,104
250 DATA168,104,64,198,251,240,6,169,2,133
260 DATA189,208,240,169,170,133,189,169,174,141
270 DATA145,204,208,229,165,176,133,189,238,175
280 DATA204,173,175,204,201,176,208,215,169,195
290 DATA141,145,204,208,208,160,0,177,172,133
300 DATA189,69,193,133,193,230,172,208,2,230
310 DATA173,165,172,197,174,165,173,229,175,144
320 DATA182,169,228,141,145,204,208,175,165,193
330 DATA133,189,169,239,141,145,204,208,164,169
340 DATA0,133,189,169,250,141,145,204,208,153
350 DATA 37688
360 DATA169,255,133,2,208,147,165,189,10,169
370 DATA96,144,2,169,253,162,0,141,4,220
380 DATA142,5,220,173,13,220,169,25,141,14
390 DATA220,165,1,73,8,133,1,41,8,96
400 DATA120,169,5,133,1,169,31,141,254,255
410 DATA169,3,141,255,255,169,131,141,250,255
420 DATA169,3,141,251,255,160,127,169,144,140
430 DATA13,220,140,13,221,141,13,220,173,13
440 DATA221,173,13,220,169,117,141,4,220,169
450 DATA3,141,5,220,169,0,133,2,133,193
460 DATA174,32,208,88,165,2,240,252,142,32
470 DATA208,169,55,133,1,32,132,255,165,193
480 DATA197,194,240,3,76,226,252,96,72,152
490 DATA72,138,72,173,5,220,160,25,140,14
500 DATA220,238,32,208,73,2,74,74,38,189
510 DATA165,189,176,16,76,110,3,201,2,208
520 DATA9,169,132,141,108,3,169,254,133,189
530 DATA173,13,220,104,170,104,168,104,64,201
540 DATA2,240,239,201,170,208,7,169,158,141
550 DATA108,3,208,228,169,110,141,108,3,169
560 DATA0,133,189,240,221,133,172,238,159,3
570 DATA173,159,3,201,176,208,205,169,177,141
580 DATA108,3,208,198,160,0,145,172,69,193
590 DATA133,193,230,172,208,2,230,173,165,172
600 DATA197,174,165,173,229,175,144,174,169,208
610 DATA 33526
620 DATA141,108,3,208,167,133,194,169,110,141
630 DATA108,3,169,172,141,159,3,165,174,133
640 DATA45,165,175,133,46,169,255,133,2,208
```


STOP PRESS

Ram Electronics....

MUSIC MACHINE

only **£49.95**

FREE PERSONAL HEADPHONES

Spectrum & Amstrad

AND GET INTO PRINT WITH.....

'RAMPRINT'

The Ultimate SPECTRUM Interface that

- * Supports a huge range of Printers
- * RamWrite 'Instant Access' Word-Process.
- * Printer Cable
- * Joystick Port

only **£33.00**

Both Interfaces for £80.00

UK HOME COMPUTERS
82 CHURCHWARD AVENUE
SWINDON, WILT S(0793)695034



MPC SOFTWARE

The Specialists in 68000 based computers

| ST Software | Amiga Software | QL Software | |
|-----------------------------|----------------------------|-----------------------------------|--------|
| Electronic Pool..... | Archon..... | Technical..... | £45 |
| Karate Kid II..... | Archon II..... | Lost Pharaoh..... | £13 |
| Major Motion..... | One on One..... | ICE..... | £26 |
| Pinball Factory..... | Marble Madness..... | Karate..... | £13 |
| Time Bandit..... | Arctic Fox..... | Scrabble..... | £13.50 |
| Fast BASIC..... | SeVfox..... | Word Typist..... | £11 |
| Shuttle II..... | Borrowed Time..... | Viewpoint..... | £17 |
| Deep Space..... | The Pawn..... | Wanderer..... | £17 |
| Starglider..... | 7 Cities of Gold..... | Room..... | £13.50 |
| Arma..... | Hitchhikers Guide..... | Mortville Manor..... | £17 |
| ST Karate..... | Leather Goddess..... | Graphics Toolkit..... | £13 |
| Leader Board..... | Adventure Constr. Set..... | Pascal (Computer 1)..... | £26 |
| Strip Poker..... | Hacker..... | Forth (Computer 1)..... | £30 |
| The Boxing..... | Minishadow..... | Concept 3D..... | £32 |
| The Pawn..... | Instant Music..... | War in the East (P1)..... | £19.95 |
| Little Computer People..... | Music Studio..... | Cash Trader..... | £10 |
| Daggs..... | Deluxe Paint..... | Fictionary..... | £65 |
| Pison Chess..... | Deluxe Print..... | Home Finance..... | £20 |
| ColourSpace..... | Deluxe Music..... | PHONE..... | £20 |
| Termbase..... | Graphcraft..... | Macro Assembler (half price)..... | £30 |
| Hitch Hikers Guide..... | Text Craft..... | ODS Companion (book)..... | £6.95 |

Also available a large range of Hardware, Software, books, & peripherals for above machines. Phone for FREE colour software catalogues & more details.

M.P.C. SOFTWARE

72, JULIAN ROAD, WEST BRIDGFORD, NOTTINGHAM NG2 5AN.
TEL: (0602) 820106

All prices correct at time of going to press E&OE

UK AMIGA'S ARRIVED

Coljon Software are pleased to be able to offer a limited number of new UK Spec Amiga's Systems 1 and 2 with full 12-month on site warranty at a price that's so low we are not allowed to print it here.

FOR DETAILS AND PRICES
PHONE 03224 45079
(24hr Answerphone)
OR SEND SAE TO

NORTH
COLJON SOFTWARE
35 MANOR ROAD
RUSHDEN
NORTHANTS
NN10 9EX

SOUTH
COLJON SOFTWARE
44 PARSONAGE MANORWAY
UPPER BELVEDERE
KENT
DA17 6LL

STRONG COMPUTER SYSTEMS

BRYN COTTAGE, PENIEL, CARMARTHEN,
DYFED SA32 7DJ

Tel: 0267 231246

SPECIAL OFFERS

SEIKOSHA 1000A PRINTER 100cps
Tractor friction Near Letter
Quality £189.00
Interface cables extra from stock

DISCS guaranteed for life all supplied in lock up security boxes

| | | |
|-----------|--------------|--------|
| 50 5 1/4" | 48 tpi ds/dd | £39.00 |
| 50 5 1/4" | 96 tpi ds/dd | £49.00 |
| 20 3 1/2" | 96 tpi ss/dd | £49.00 |
| 20 3 1/2" | 96 tpi ds/dd | £69.00 |

| | | |
|--------|----------------------|--------|
| 5 1/2" | lock up security box | £14.95 |
| 3 1/2" | lock up security box | £12.95 |

Ring for details of all other bargains.
All prices include VAT, carriage and delivery
next day from stock.

"THE ADVENTURERS HANDBOOK"

The monthly book no self-confessed adventurer should be without.

"Stunning value" - Tony Bridge, PCW,
issue 14 available now!

50 pages of adventure help and news for just £1

FOR EVEN BETTER VALUE
TAKE ADVANTAGE OF OUR SUBSCRIPTION RATES

| | |
|---------------|-------|
| 3 issues for | £2.75 |
| 6 issues for | £5.00 |
| 12 issues for | £9.00 |

Issues 1 to 13 are still available and cover hints, maps and solutions to over 250 adventures (issues 1-12 for £9 or £1 each individually).

ARCADE PLAYERS

If you enjoy arcade games why not take a look at our other handbooks - £1 each - back copies and subscriptions as for Adventurer.

- Spectrum Arcade Handbook - issue 14
- Commodore Arcade Handbook - issue 13
- Amstrad Handbook (including adventures) - issue 13
- BBC Handbook (including adventures) - issue 13
- C16/Plus 4 Handbook (including adventures) - issue 7

Send cheque or PO to:

H&D SERVICES (PCW)
1338 Ashton Old Road
Higher Openshaw
Manchester M11 1JG
Tel: 061-370 5666

```
650 DATA141,169,11,141,17,208,32,83,228,32
660 DATA167,2,32,147,252,76,131,164,65,83
670 DATA84,82,79,45,76,79,65,68,13,13
680 DATA32,32,70,65,83,84,32,76,79,65
690 DATA68,47,83,65,86,69,32,83,89,83
700 DATA84,69,77,32,70,79,82,32,84,72
710 DATA69,32,67,66,77,32,54,52,13,13
720 DATA32,32,32,32,32,32,32,32,32
730 DATA40,67,41,32,49,57,56,54,32,80
740 DATA65,85,76,32,66,82,65,73,78,13
750 DATA0,169,147,32,210,255,169,6,141,32
760 DATA208,141,134,2,169,15,141,33,208,24
770 DATA162,1,160,15,32,240,255,169,36,160
780 DATA206,32,30,171,169,76,133,115,169,165
790 DATA133,116,169,206,133,117,96,230,122,208
800 DATA2,230,123,140,188,206,160,0,177,122
810 DATA201,64,240,7,172,188,206,76,121,0
820 DATA0,32,115,0,201,83,208,3,76,247
830 DATA206,201,67,208,3,76,156,207,76,8
840 DATA175,169,32,160,15,153,65,3,136,16
850 DATA250,96,160,0,185,34,205,153,167,2
860 DATA200,192,88,208,245,160,0,185,122,205
870 DATA 25498
880 DATA153,81,3,200,192,171,208,245,96,32
890 DATA209,206,32,115,0,201,34,240,3,76
900 DATA8,175,32,115,0,160,0,177,122,201
910 DATA34,240,8,153,65,3,200,192,16,208
920 DATA242,152,24,101,122,133,122,165,123,105
930 DATA0,133,123,32,220,206,32,229,207,32
940 DATA121,0,201,44,208,26,32,115,0,32
950 DATA138,173,32,247,183,132,43,133,44,32
960 DATA253,174,32,138,173,32,247,183,132,45
970 DATA133,46,169,234,141,2,3,169,3,141
980 DATA3,3,169,3,141,60,3,162,60,160
990 DATA3,32,218,247,169,167,141,61,3,169
1000 DATA2,141,62,3,169,4,141,63,3,169
1010 DATA3,141,64,3,169,105,32,105,248,173
1020 DATA61,3,172,62,3,133,193,132,194,173
1030 DATA63,3,172,64,3,133,174,132,175,32
1040 DATA103,248,32,83,228,32,0,204,32,143
1050 DATA246,76,116,164,169,1,170,168,32,186
1060 DATA255,169,0,32,189,255,169,0,32,213
1070 DATA255,160,3,185,61,3,153,43,0,136
1080 DATA16,247,169,204,160,207,32,30,171,165
1090 DATA197,201,4,208,250,169,0,133,198,76
1100 DATA247,206,13,73,78,83,69,82,84,32
1110 DATA84,65,80,69,32,38,32,80,82,69
1120 DATA83,83,32,70,49,13,0,32,115,0
1130 DATA 27004
1140 DATA201,40,208,12,32,138,173,32,247,183
1150 DATA140,249,3,141,250,3,96,32,119,206
1160 DATA76,116,164,0,0,0,0,0,0,0
1170 DATA 2861
```

READY.



GOAL! BBC/Electron

The first realistic football simulation for the Electron featuring excellent graphics, music and an intelligent opposition that actually adjusts its skill level during the game depending on current state of play.

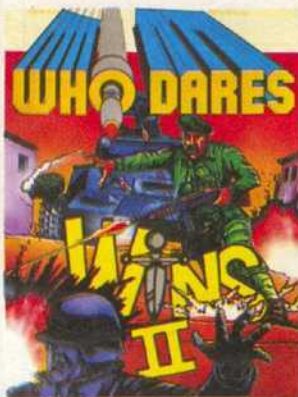
Cass. **£7.95**

FUTURE SHOCK BBC/Electron

An amazing new style of Arcade game with inter-active sub plots, using large detailed graphics for superb detail. This game pushes the machine and the player to unparalleled limits for many hours of enjoyment making this a game not to be missed.

Quote from Electron User:- December Issue.
"Future Shock is an excellent program, a game which overflows with character and humour." "Overall Rating 9/10"

£7.95 Cass.



WHO DARES WINS II C16/+4

At long last a conversion for the C16 of a No. 1 Hit that lives up to its original. Over 40 screens of fighting action (more screens than the original 64 version).

Cass. **£7.95**

JET SET WILLY II C16/+4, BBC/Electron

Over 90 screens of this classic game will give even the most skilful player the ultimate challenge.

£7.95 Cass.



TYNESOFT
COMPUTER SOFTWARE



Variable Trace

Mario Richard

This machine code utility for the C64 is a very useful debugging tool. It displays the current variable being used in the top left hand corner of the screen during execution of a Basic program.

Install the routine in memory before loading your own programs and start it with Sys 49152. It can be turned off by pressing Restore.

```
60 FOR X=49152 TO 49225:READ A:POKE X,A
70 NEXT X
80
100 DATA 120,169,13,141,20,3,169,192
105 DATA 141,21,3,88,96,169,32,141
110 DATA 0,4,141,1,4,141,2,4
115 DATA 165,69,240,43,233,63,141,0
120 DATA 4,165,70,201,128,48,7,233
125 DATA 128,162,36,142,2,4,201,0
130 DATA 240,9,201,58,48,2,233,64
135 DATA 141,1,4,173,32,208,141,0
140 DATA 216,141,1,216,141,2,216,76
145 DATA 49,234

READY.
```

System Time

Paul Hutchison

This routine for the Amstrad CPCs allows the system variable *Time* to be reset to zero. The machine code lies between locations &AB00 and &AB09.

To call the routine use *Call &AB00* after saving the code.

```
10 MEMORY &2999
20 MODE 1
30 CAT:PRINT:PRINT
40 INPUT "Enter PAGE NAME to display"; filename$
50 LOAD filename$,&3000
60 INPUT "ENTER DISPLAY MODE (0 or 1)";modedisplay
70 IF modedisplay<0 OR modedisplay>1 THEN 60
80 MODE modedisplay
90 :DISPLAY,&3000
100 WHILE INKEY#="" :WEND:WHILE INKEY#<>"" :WEND
110 MODE 1
120 PRINT "Press ENTER to run again":PRINT "Press P to send page to PRINTER"
130 INPUT entkey$
140 IF UPPER$(entkey#)="P" THEN GOSUB 160
150 RUN
160 MODE 1
170 PRINT "ensure PRINTER is ready, Then press":PRINT "the ENTER key"
180 WHILE INKEY#="" :WEND:WHILE INKEY#<>"" :WEND
190 :PRTPAGE,&3000,1
200 RETURN
```

Teletext Aid

R Rodden

This routine for the Amstrad CPCs uses the Volex Teletext Adaptor and displays a previously saved page, and gives you the option of sending it to the printer.

The two different display modes are catered for and the printer routine will show hidden information.

```
10 MEMORY &AAFF
20 FOR a=43776 TO 43785
30 READ b
40 POKE a,b
50 NEXT
60 MODE 1
70 PRINT "USE 'CALL &AB00' TO RESET TIME"
80 NEW
90 DATA 17,0,0,33,0,0,205,16,189,201
```

We want your programs!!

Yes, this is your chance to get rich and famous. Well, famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages.

What sort of thing are we looking for? You name it - anything original from games to utilities, applications and the like, written in Basic, machine code or anything else you can think of.

Programs for any computer will be considered, not just the old faithfuls

(Spectrum, Amstrad, QL, Commodore, etc), so send those listings in. What we need is a working copy of the program on tape or disc, plus an accompanying article or documentation that you would anticipate going with the piece, normally not over 2000 words.

Alternatively, send in your short programs to the Bytes and Pieces page - what could be easier?

In return, we'll pay the princely sum of £25/page for the main programming

pages and £5 for each Bytes & Pieces contribution we publish. Plus the fact that your name will be indelibly carved in the *Popular Programming Hall of Fame* till time immemorial. What more could any true programmer ask?

Just send your masterpieces in to **Duncan Evans, Technical Editor, Popular Computing Weekly, 12-13 Little Newport St, London WC2 7PP** and he'll assess them post haste.



COMPUTER GRAPHICS ARTISTS

Due to continued expansion, we have vacancies for two more 'in-house' artists to provide graphical support for our team of programmers. Applicants must have previous experience within the industry, and have practical knowledge of Spectrum, Commodore 64 or Amstrad home computers.

To arrange an informal interview, please write to the Software Development Manager at the address below, or telephone during working hours.

ODIN COMPUTER GRAPHICS
Mulberry House
Canning Place
LIVERPOOL L1 8HN
Telephone: 051-709 4462

SPECTRUM REPAIRS

ONLY ONE COMPANY OFFERS

- Over 15 years computer maintenance experience on all types of systems from Mainframes to Micros.
- We repair **ALL** Spectrums sent to us. Not only the profitable ones. **IF** they are sent to us first. We receive many that have been tampered with by other repair companies and returned to their owners unrepaired – often further damaged by an attempted repair.
- An honest six months parts and labour written guarantee on the **WHOLE** computer – not only on the fault repaired – read the other adverts carefully.
- Free update and overhaul with each repair – it is in both our interests for your computer to be reliable.
- **NO "FREE"** games – your money is best spent on top quality components and professional computer engineers.
- All Spectrums are returned fully insured by 1st Class post. Normally within 24 hours – please do not send power supplies.
- All-inclusive price of £20 or £15 without update and guarantee, regardless of the number of faults found.

M. P. Computer Maintenance,
The Laurels (Dept 1),
Wendling, Dereham,
Norfolk NR19 2LZW
Tel: 036287 327

PDQL

*Software
for the QL*

49 FREDERICK STREET
 BIRMINGHAM B1 3HN
 021-233 3042

MAKE THE MOST OF YOUR QL

Business time means money; leisure time means enjoyment. Save money and enjoy life more with fuller use of Archive. Our **ARCHIVE INTERACTIVE TUTORIAL** is a comprehensive teaching module leading the novice into exciting, but hitherto uncharted waters. It additionally refreshes the more experienced Archive addict. £21

Corruption of database files and medium means loss of a spare cartridge or disc, irritation at redoing work, lost records or documents, and no satisfactory way of restoration. PDQL has developed two products to limit the damage. **RECOVER (Archive database recovery)** enables a database to be rebuilt generating an "export" format file. £20

LAZARUS is a more deliberate program designed to restore anything capable of restoration stored on a corrupted or damaged disc, from any program. £20

PLUS

| | |
|--|-----|
| ARCHIVE SCREEN DESIGNER | £15 |
| DATABASE RECOVERY | £20 |
| DATABASE ANALYSER | £7 |
| SCREEN FORMAT PRINTER | £7 |
| FILE DUMP | £7 |
| COMPARATOR | £8 |
| COPIER | £8 |
| CASH TRADER UPGRADE (existing users) | £39 |
| SUPERFAST (new users) | £80 |
| PDQ PAYROLL | £70 |
| VAT ACCOUNTS | £25 |
| NAME & ADDRESS Standard Archive | £18 |
| Extra Run Time Module | £18 |
| MAILMERGE De-Luxe | £14 |
| INVOICE GENERATOR | £30 |

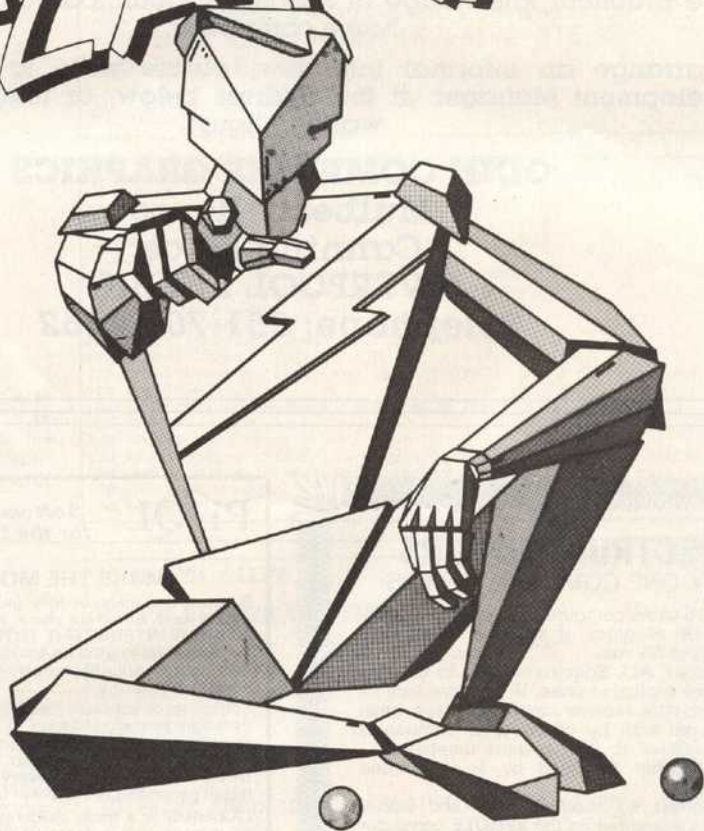
Many other General Utility, Archive Utility and Archive Application systems. New systems or adjustments to existing systems built to order.

Prices include VAT and postage within the UK. Cheques with orders to, and full descriptive list available from, PDQL.

When writing please indicate if you have disk-drive and/or extended memory.

WE WANT YOU!

PLAYERS



**THE PLAYERS TEAM ARE OUT LOOKING FOR
YOU!**

**CAN YOU WRITE COMMERCIAL QUALITY
GAMES IN MACHINE CODE?**

Write in Strictest Confidence to:
RICHARD PAUL JONES
PLAYERS SOFTWARE, CALLEVA PARK
ALDERMASTON
BERKS. RG7 4QW



With Kenn Garroch

Whatsits and thingummys

Janet Kiff of Sutton in Surrey, writes:

Having bought *Popular*, November 20, I was rather alarmed to read Jim Gibb's letter and your reply (neither of which I understood, I might add).

The words I did not understand applied to my set up. I have two micros, an Electron, with Plus One and Centronics GLP1 printer, running View, thus facilitating this letter, plus a CPC 464. Both micros are used with a Ferguson TX TV/Monitor, since I bought the Amstrad secondhand with a green screen monitor (I'd hoped to use this with the Electron - no such luck). I tend to use the Electron more for letter work, and the Amstrad more for games.

I was using the Amstrad with an old colour TV and modulator, but had problems with *Ghosts and Goblins* in black and white. To solve the problem, I went out and bought a Ferguson TX and obtained a lead from the Amstrad User show. I was told to leave out the Modulator's RGB lead and just use it as a power supply. I have had no problems with this lead. After seeing the comments about colour problems on the Ferguson, am I doing any damage to any of the equipment? Everything seems fine and certainly the displays from both machines are far superior to the old colour TV.

Please could you explain in non-electronics language about the what-sit you have to have made up in a computer shop as per the diagram, of the thingummywhatsit will go kaput. I don't know what resistances, luminance or sync are.

All I can say is, I'll try. To others who may not know what this is all about, see *Popular*, November 20.

RGB (red, green and blue) signals are what the computer puts out to form the picture you see on the monitor. The monitor screen is made up from small groups of three phosphors (chemicals that glow when an electron beam hits them, one each for red, green and blue) which are so close together that illuminating all three at different brightnesses produces a specific colour.

The RGB signals are used to light up each phosphor, producing a different colour depending on their relative strengths (the luminance signal would also do this but only for the overall brightness of the three phosphors). For instance, all signals at low power will produce black, red on and blue and green off produce red, and all at full strength produce white (or a reasonable facsimile thereof).

The Amstrad can produce 27 colours on screen so the RGB signals have to be mixed in 27 different ways to produce each colour. The problem that Keith Platt seemed to be having was that the signals were not missing properly and so he was not getting the full range of colours. This was because the RGB signals put out by the Amstrad did not match the RGB signals expected by the monitor.

To match the signals, the resistor whatsites are used. All these do is change the amounts of the signals being fed into the monitor to an acceptable level and range so that all the colours appear, ie,

the signals mix in such a way as to produce the correct brightnesses for each phosphor.

The sync signal is used to tell the monitor when to start displaying the picture. The complete image is made up by starting at the top left of the screen and scanning across a line at a time, each line of the picture being made up from a series of dots, or pixels, of different colours. When the line is complete, the next line down is started at the left of the screen and scanned across. This is continued until the complete picture is formed.

The whole screen is scanned 50 times a second so, taking into account persistence of vision, no flicker is seen. The sync signal is used to coordinate the frames (whole screen images) and lines so that everything is synchronised and the picture is stable.

The main thing to remember is that if it is working, leave it be. From the sounds of things, your picture is satisfactory and the lead you obtained does the job. You would find it quite hard to damage your equipment from the monitor outputs since the signals involved are so low.

Interrupted by the crash

S. Dunn of Weston-Super-Mare, writes:

I have a Commodore 64 and have been mucking around with machine code. I wonder if you could help me with the following problem. How do I utilise the IRQ and NMI interrupts directly without having to use the indirect addresses and kernal Rom? Is it possible to switch the kernal out and install my own interrupt

addresses? I have tried this but all I get is a crash.

Quite feasible; all it needs is a little care and some understanding of how the interrupts are generated. Both IRQ (interrupt request) and NMI (non maskable interrupt) are generated by the interface chips. Specifically NMI can be derived from CIA2 and IRQ from CIA1 and the VIC II chip.

| SETUP | ADDRESS AT WHICH |
|-------|------------------|
| 0000 | DISABLE IRQS |
| 0001 | DISABLE IRQS |
| 0002 | DISABLE IRQS |
| 0003 | DISABLE IRQS |
| 0004 | DISABLE IRQS |
| 0005 | DISABLE IRQS |
| 0006 | DISABLE IRQS |
| 0007 | DISABLE IRQS |
| 0008 | DISABLE IRQS |
| 0009 | DISABLE IRQS |
| 000A | DISABLE IRQS |
| 000B | DISABLE IRQS |
| 000C | DISABLE IRQS |
| 000D | DISABLE IRQS |
| 000E | DISABLE IRQS |
| 000F | DISABLE IRQS |
| 0010 | DISABLE IRQS |
| 0011 | DISABLE IRQS |
| 0012 | DISABLE IRQS |
| 0013 | DISABLE IRQS |
| 0014 | DISABLE IRQS |
| 0015 | DISABLE IRQS |
| 0016 | DISABLE IRQS |
| 0017 | DISABLE IRQS |
| 0018 | DISABLE IRQS |
| 0019 | DISABLE IRQS |
| 001A | DISABLE IRQS |
| 001B | DISABLE IRQS |
| 001C | DISABLE IRQS |
| 001D | DISABLE IRQS |
| 001E | DISABLE IRQS |
| 001F | DISABLE IRQS |
| 0020 | DISABLE IRQS |
| 0021 | DISABLE IRQS |
| 0022 | DISABLE IRQS |
| 0023 | DISABLE IRQS |
| 0024 | DISABLE IRQS |
| 0025 | DISABLE IRQS |
| 0026 | DISABLE IRQS |
| 0027 | DISABLE IRQS |
| 0028 | DISABLE IRQS |
| 0029 | DISABLE IRQS |
| 002A | DISABLE IRQS |
| 002B | DISABLE IRQS |
| 002C | DISABLE IRQS |
| 002D | DISABLE IRQS |
| 002E | DISABLE IRQS |
| 002F | DISABLE IRQS |
| 0030 | DISABLE IRQS |
| 0031 | DISABLE IRQS |
| 0032 | DISABLE IRQS |
| 0033 | DISABLE IRQS |
| 0034 | DISABLE IRQS |
| 0035 | DISABLE IRQS |
| 0036 | DISABLE IRQS |
| 0037 | DISABLE IRQS |
| 0038 | DISABLE IRQS |
| 0039 | DISABLE IRQS |
| 003A | DISABLE IRQS |
| 003B | DISABLE IRQS |
| 003C | DISABLE IRQS |
| 003D | DISABLE IRQS |
| 003E | DISABLE IRQS |
| 003F | DISABLE IRQS |
| 0040 | DISABLE IRQS |
| 0041 | DISABLE IRQS |
| 0042 | DISABLE IRQS |
| 0043 | DISABLE IRQS |
| 0044 | DISABLE IRQS |
| 0045 | DISABLE IRQS |
| 0046 | DISABLE IRQS |
| 0047 | DISABLE IRQS |
| 0048 | DISABLE IRQS |
| 0049 | DISABLE IRQS |
| 004A | DISABLE IRQS |
| 004B | DISABLE IRQS |
| 004C | DISABLE IRQS |
| 004D | DISABLE IRQS |
| 004E | DISABLE IRQS |
| 004F | DISABLE IRQS |
| 0050 | DISABLE IRQS |
| 0051 | DISABLE IRQS |
| 0052 | DISABLE IRQS |
| 0053 | DISABLE IRQS |
| 0054 | DISABLE IRQS |
| 0055 | DISABLE IRQS |
| 0056 | DISABLE IRQS |
| 0057 | DISABLE IRQS |
| 0058 | DISABLE IRQS |
| 0059 | DISABLE IRQS |
| 005A | DISABLE IRQS |
| 005B | DISABLE IRQS |
| 005C | DISABLE IRQS |
| 005D | DISABLE IRQS |
| 005E | DISABLE IRQS |
| 005F | DISABLE IRQS |
| 0060 | DISABLE IRQS |
| 0061 | DISABLE IRQS |
| 0062 | DISABLE IRQS |
| 0063 | DISABLE IRQS |
| 0064 | DISABLE IRQS |
| 0065 | DISABLE IRQS |
| 0066 | DISABLE IRQS |
| 0067 | DISABLE IRQS |
| 0068 | DISABLE IRQS |
| 0069 | DISABLE IRQS |
| 006A | DISABLE IRQS |
| 006B | DISABLE IRQS |
| 006C | DISABLE IRQS |
| 006D | DISABLE IRQS |
| 006E | DISABLE IRQS |
| 006F | DISABLE IRQS |
| 0070 | DISABLE IRQS |
| 0071 | DISABLE IRQS |
| 0072 | DISABLE IRQS |
| 0073 | DISABLE IRQS |
| 0074 | DISABLE IRQS |
| 0075 | DISABLE IRQS |
| 0076 | DISABLE IRQS |
| 0077 | DISABLE IRQS |
| 0078 | DISABLE IRQS |
| 0079 | DISABLE IRQS |
| 007A | DISABLE IRQS |
| 007B | DISABLE IRQS |
| 007C | DISABLE IRQS |
| 007D | DISABLE IRQS |
| 007E | DISABLE IRQS |
| 007F | DISABLE IRQS |
| 0080 | DISABLE IRQS |
| 0081 | DISABLE IRQS |
| 0082 | DISABLE IRQS |
| 0083 | DISABLE IRQS |
| 0084 | DISABLE IRQS |
| 0085 | DISABLE IRQS |
| 0086 | DISABLE IRQS |
| 0087 | DISABLE IRQS |
| 0088 | DISABLE IRQS |
| 0089 | DISABLE IRQS |
| 008A | DISABLE IRQS |
| 008B | DISABLE IRQS |
| 008C | DISABLE IRQS |
| 008D | DISABLE IRQS |
| 008E | DISABLE IRQS |
| 008F | DISABLE IRQS |
| 0090 | DISABLE IRQS |
| 0091 | DISABLE IRQS |
| 0092 | DISABLE IRQS |
| 0093 | DISABLE IRQS |
| 0094 | DISABLE IRQS |
| 0095 | DISABLE IRQS |
| 0096 | DISABLE IRQS |
| 0097 | DISABLE IRQS |
| 0098 | DISABLE IRQS |
| 0099 | DISABLE IRQS |
| 009A | DISABLE IRQS |
| 009B | DISABLE IRQS |
| 009C | DISABLE IRQS |
| 009D | DISABLE IRQS |
| 009E | DISABLE IRQS |
| 009F | DISABLE IRQS |
| 00A0 | DISABLE IRQS |
| 00A1 | DISABLE IRQS |
| 00A2 | DISABLE IRQS |
| 00A3 | DISABLE IRQS |
| 00A4 | DISABLE IRQS |
| 00A5 | DISABLE IRQS |
| 00A6 | DISABLE IRQS |
| 00A7 | DISABLE IRQS |
| 00A8 | DISABLE IRQS |
| 00A9 | DISABLE IRQS |
| 00AA | DISABLE IRQS |
| 00AB | DISABLE IRQS |
| 00AC | DISABLE IRQS |
| 00AD | DISABLE IRQS |
| 00AE | DISABLE IRQS |
| 00AF | DISABLE IRQS |
| 00B0 | DISABLE IRQS |
| 00B1 | DISABLE IRQS |
| 00B2 | DISABLE IRQS |
| 00B3 | DISABLE IRQS |
| 00B4 | DISABLE IRQS |
| 00B5 | DISABLE IRQS |
| 00B6 | DISABLE IRQS |
| 00B7 | DISABLE IRQS |
| 00B8 | DISABLE IRQS |
| 00B9 | DISABLE IRQS |
| 00BA | DISABLE IRQS |
| 00BB | DISABLE IRQS |
| 00BC | DISABLE IRQS |
| 00BD | DISABLE IRQS |
| 00BE | DISABLE IRQS |
| 00BF | DISABLE IRQS |
| 00C0 | DISABLE IRQS |
| 00C1 | DISABLE IRQS |
| 00C2 | DISABLE IRQS |
| 00C3 | DISABLE IRQS |
| 00C4 | DISABLE IRQS |
| 00C5 | DISABLE IRQS |
| 00C6 | DISABLE IRQS |
| 00C7 | DISABLE IRQS |
| 00C8 | DISABLE IRQS |
| 00C9 | DISABLE IRQS |
| 00CA | DISABLE IRQS |
| 00CB | DISABLE IRQS |
| 00CC | DISABLE IRQS |
| 00CD | DISABLE IRQS |
| 00CE | DISABLE IRQS |
| 00CF | DISABLE IRQS |
| 00D0 | DISABLE IRQS |
| 00D1 | DISABLE IRQS |
| 00D2 | DISABLE IRQS |
| 00D3 | DISABLE IRQS |
| 00D4 | DISABLE IRQS |
| 00D5 | DISABLE IRQS |
| 00D6 | DISABLE IRQS |
| 00D7 | DISABLE IRQS |
| 00D8 | DISABLE IRQS |
| 00D9 | DISABLE IRQS |
| 00DA | DISABLE IRQS |
| 00DB | DISABLE IRQS |
| 00DC | DISABLE IRQS |
| 00DD | DISABLE IRQS |
| 00DE | DISABLE IRQS |
| 00DF | DISABLE IRQS |
| 00E0 | DISABLE IRQS |
| 00E1 | DISABLE IRQS |
| 00E2 | DISABLE IRQS |
| 00E3 | DISABLE IRQS |
| 00E4 | DISABLE IRQS |
| 00E5 | DISABLE IRQS |
| 00E6 | DISABLE IRQS |
| 00E7 | DISABLE IRQS |
| 00E8 | DISABLE IRQS |
| 00E9 | DISABLE IRQS |
| 00EA | DISABLE IRQS |
| 00EB | DISABLE IRQS |
| 00EC | DISABLE IRQS |
| 00ED | DISABLE IRQS |
| 00EE | DISABLE IRQS |
| 00EF | DISABLE IRQS |
| 00F0 | DISABLE IRQS |
| 00F1 | DISABLE IRQS |
| 00F2 | DISABLE IRQS |
| 00F3 | DISABLE IRQS |
| 00F4 | DISABLE IRQS |
| 00F5 | DISABLE IRQS |
| 00F6 | DISABLE IRQS |
| 00F7 | DISABLE IRQS |
| 00F8 | DISABLE IRQS |
| 00F9 | DISABLE IRQS |
| 00FA | DISABLE IRQS |
| 00FB | DISABLE IRQS |
| 00FC | DISABLE IRQS |
| 00FD | DISABLE IRQS |
| 00FE | DISABLE IRQS |
| 00FF | DISABLE IRQS |

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW*, 12-13 Little Newport Street, London WC2R 3LD

The Fax of life and mail systems

David Wallin compares the relative virtues of snail mail, E-mail and Fax machines



I gather from Telecom Gold that I inadvertently quoted the wrong prices for joining the network, so this week, I'm going to go into some detail about Gold charges, and the advantages of electronic mail.

There are two ways to join Telecom Gold: club membership and corporate membership, the latter being both the most expensive and giving the most flexibility and features.

Club membership costs you £40 per mailbox, compared to corporate membership £300 for unlimited mailboxes - you may add more at any time, for no extra cost. Also, training charges are different. Corporate members get free training by Telecom Gold, but club members have to pay £30 per person. This effectively raises the cost for one club mailbox to £70. For corporate members, extra training is available which is not even an option for Club members.

There are disadvantages to joining as a corporate member, one being that the minimum monthly invoice is £100 (discounts are apparently available), compared to a club membership minimum charge of only £10. Corporate members do get their first month's storage and connect time for free, which if you have 20 or so users could well amount to a sum in excess of £500.

The payment method is different for each type of membership. Corporate members are invoiced each month and can pay by cheque, whereas club members can only pay by direct debit mandate or credit card.

Basically, corporate membership is for the businesses with ten, twenty or even more branches which employ lots of people and want to keep in contact with them all via E-Mail and therefore will need lots of mailboxes. One example of a company who installed E-Mail for this kind of purpose is the Westinghouse Corporation. It cost them \$4.9 million to install worldwide and now saves them \$42.1 million a year! This is for many reasons, particularly that high speed transmission of data is faster than talking. Also E-Mail is much cheaper and better than Telex.

The charge for using Telecom Gold is the same whether you joined club, corporate, MicroLink (see below) or whatever.

| | |
|-------------------------|--|
| Connect Charge: | 11p per minute - standard rate (Monday to Friday; 0800-1900) 3.5p per minute - cheap rate (other times + public holidays) |
| Storage: | 20p per unit of 2048 characters a month (undeleted mail, stored files, etc.) |
| PSS connection: | 2.5p per minute (300 baud) 3.0p per minute (1200 baud) Direct dial to the London Telecom Gold number is free |
| National E-Mail: | Free |
| International: | Charges vary by country |
| UK Telex - send: | 5.5p per 100 characters |
| Telex - receive: | Now free - was 50p per telex |
| Manuals: | Vary: £2-£10 |
| Databases: | Vary: 9p-£2 a minute |

Telecom Gold use is not cheap and my bills at the present are averaging about £45 a month. I'm trying to keep this down - Gold does offer help and advice on how to keep storage, etc. down. One big tip: never connect at the standard rate, it's four times the cost of cheap rate.

There are other differences between club and corporate membership and the full, most up-to-date charges and information sheet is available from either Telecom Gold, or Jenny Bailey Associates - Public Relations. Telecom Gold's address is 60-68 St Thomas Street, London SE1 3QU. Jenny Bailey Associates' address is 2 Avenue Road, Epsom, Surrey KT18 7QT.

Database Publications has corporate membership and offer the general public and business the ability to have a mailbox set up for them. This costs Database nothing, but it charges £5 to cover a manual and the time taken to set up a mailbox. This is the service more commonly known as MicroLink.

Derek Meakin, managing director of Database has made a few interesting points about E-Mail (all E-Mail services, not just MicroLink) compared to conventional Snail-Mail (GPO mail). He claims that, "Trusting the Post Office to get your message through efficiently is like shooting yourself in the foot".

Indeed, there are figures available to prove that the Post Office is in fact unreliable at getting mail through. POUNC - the Post Office Users National Council and the Post Office itself have compiled figures and reports on the speed of snail mail. The PO admits that 12 million of the 100 million first class letters posted each week do not reach their destination by the following day, this is a 12% failure rate, whereas E-Mail is 100% efficient at getting messages to people instantly.

The failure rate of first class mail, from London to any of five of the county's largest cities, arriving the next day is 25%. It's the same from these counties into London. Belfast to London has a 30% failure rate.

Snail-Mail can only be received when you're at home. E-Mail can be collected from anywhere there's a phone and computer with modem. For sending business letters, E-Mail is clearly more efficient, inferior only to faxing. Fax is a method of sending pictures over the phone line. It's more expensive to set up - Fax machines cost thousands of pounds and are more expensive to use. An A4 page takes one minute to send on the fastest machines - and it's all at the normal phone rate. An A4 page contains 500 odd words, but E-Mail at 1200 baud can send thousands of words a minute. E-Mail only loses out to faxing and the post in that it can't send any graphics, whereas fax can send pictures, diagrams, etc, and you can post just about anything.

JOIN THE
CELEBRATIONS FOR THE...
21st ZX MICROFAIR
CHRISTMAS SPECIAL



This year's Christmas Microfair is also our 21st show and we hope Spectrum and QL owners will help us mark the occasion. To thank you for your support (and welcome new visitors) we'll be running (easy) competitions with champagne and Christmas hamper prizes!

Around one hundred suppliers will be there with a huge selection of hardware, software, books, magazines and other goodies for the full range of Spectrum and QL computers. You can see the new software releases, inspect the latest add-ons or just browse and chat with the experts from the user groups or your favourite magazine. There will be big discounts on selected items and special bargains at the Bring and Buy stand.

And there's a licensed bar and restaurant open all day for meals, drinks and snacks. You'll enjoy a great day out, in a friendly atmosphere.

Send now for reduced price tickets on the coupon below

MICROFAIR
CHRISTMAS SPECIAL
Saturday 13th December 1986



(10am-6pm)
New Horticultural Hall,
Elverton St,
London SW1

Admission: Adults £2.00
Kids (under 14) £1.50

SEND FOR REDUCED PRICE ADVANCE TICKETS TODAY

Send to Mike Johnston (Organiser), Dept ZX MICROFAIRS, 71 Park Lane, London N17 0HG.
Please send me advance tickets
(Adult @ £1.50) advance tickets
(Child under 14 @ £1.00)

Name: _____
Address: _____



Please include a stamped, self-addressed envelope and make cheques/P.O.s payable to ZX Microfair

Exhibitors ring Mike or Moira on 01-801 9172 for stand availability!

SOFT INSIGHT

DISCOUNT SOFTWARE
(ESTABLISHED 4 YEARS)
WE'RE NOT THE CHEAPEST
BUT WE ARE THE BEST

| | | | | | | | |
|---|-----------|--------------------------|-------|-------|-------------------------|------|------|
| SPECTRUM ** SPECTRUM ** SPECTRUM R.A.P. | OUR PRICE | KALETH | 7.95 | 6.50 | YOUNG PLAYERS QUESTIONS | 7.95 | 6.50 |
| CORBA | 7.95 | ELITE | 14.95 | 12.00 | OXADIA 3 | 9.95 | 7.95 |
| FIVE TO SEVEN | 9.95 | ELITE SUPER (CORBA MK 4) | 1.95 | 1.95 | TRAVY TOUR | 3.95 | 1.95 |
| SANDY | 7.95 | GHOSTS IN GOBLINS | 7.95 | 6.50 | STRIVE FORCE CORBA | 9.95 | 7.95 |
| INFILTRATOR | 9.95 | THEY STOLE A MILLION | 5.95 | 7.95 | WE'RE BACK TO 2 | 9.95 | 7.95 |
| FYNDERS | 9.95 | ELITE'S PAL | 5.95 | 7.95 | BOBBY BEARING | 9.95 | 7.95 |
| PROGNET | 7.95 | KNAR WARRING | 7.95 | 6.50 | SHAD-INS HEAD | 9.95 | 7.95 |
| FYNDERS | 9.95 | SPACE WARRIOR | 7.95 | 6.50 | SPACE HORROR | 9.95 | 7.95 |
| PARLIAMENT | 9.95 | SCOOTY BOO | 7.95 | 6.50 | MARBLE MADNESS | 9.95 | 7.95 |
| PARLIAMENT 2 | 9.95 | ACADAMY | 9.95 | 7.50 | ORBIT | 7.95 | 6.50 |
| IMPOSSIBLE MEDIUM | 7.95 | ORACULA | 9.95 | 7.50 | ORBIT 2 | 9.95 | 7.95 |
| BEACH HEAD 2 | 7.95 | PIRCE | 7.95 | 6.50 | SALVAN | 9.95 | 7.95 |
| WINTER GAMES | 7.95 | TRIALS KNIGHT | 9.95 | 7.50 | TRIALS KNIGHT | 9.95 | 7.95 |
| 3 WEEKS IN PARADISE | 9.95 | TRIALS ACE | 7.95 | 6.50 | AVENGER | 9.95 | 7.95 |
| PAPERBOY | 7.95 | FILLING | 9.95 | 7.50 | BLACKBOARD | 9.95 | 7.95 |
| REVELATION | 9.95 | TIMARAWAN | 9.95 | 7.95 | SUPERSTAR PING PONG | 9.95 | 7.95 |
| BACK TO THE FUTURE | 7.95 | TAP FOOT | 7.95 | 6.50 | CHANNING | 9.95 | 7.95 |
| HEADLAND | 7.95 | BALIVAN | 7.95 | 6.50 | SOLD A MILLION 3 | 9.95 | 7.95 |
| JACK THE HOPPER | 9.95 | VERDINI | 7.95 | 6.50 | HTTS 10 YRS 3 | 9.95 | 7.95 |
| WALL | 7.95 | PIG GAMES | 9.95 | 7.95 | WORLD GAMES | 9.95 | 7.95 |
| ACTRESS | 7.95 | REBEL PLANET | 9.95 | 7.95 | CRYSTAL CASTLES | 9.95 | 7.95 |
| GAUNTLET | 9.95 | SUPERCYCLE | 7.95 | 6.50 | ALIENCE | 9.95 | 7.95 |
| TOMMYBOY | 9.95 | TRIALS GAMES | 7.95 | 6.50 | LET'S GET BACK | 9.95 | 7.95 |
| FAT MORN BLOWS A SPARKY | 9.95 | AMTIG 2 | 14.95 | 12.00 | KONAMI CON OF HTS | 3.95 | 2.95 |
| ORBIT | 7.95 | TY RACER | 9.95 | 7.95 | DIAGNOSTIC | 9.95 | 7.95 |
| GOLFING | 9.95 | TRUCKY ROAD | 9.95 | 7.95 | OBAN GAMES | 9.95 | 7.95 |
| ANTHRA | 9.95 | CURELL BIG 4 | 9.95 | 7.95 | THE GREAT ESCAPES | 9.95 | 7.95 |
| CYRUS 2 CROSS | 9.95 | STINGO FORCE CORBA | 9.95 | 7.95 | THE GREAT ESCAPES | 9.95 | 7.95 |
| COLORADO 4 CROSS | 9.95 | SPRINTERS | 7.95 | 6.50 | JACK THE HOPPER | 9.95 | 7.95 |
| LIGHTHOUSE | 9.95 | TOP IRON | 7.95 | 6.50 | WANGKIDALLE - ULTIMATE | 9.95 | 7.95 |
| YE AR GONG FU 2 | 9.95 | TRIALS CRESTA | 7.95 | 6.50 | TRANSFORMER - OCEAN | 9.95 | 7.95 |
| DEACTIVATOR | 9.95 | GRAPHIC ADVENTURE | 22.95 | 18.95 | ALYCAT | 9.95 | 7.95 |
| IT'S A KNOCKOUT | 14.95 | CREATOR | 9.95 | 7.95 | BLACKBOARD | 9.95 | 7.95 |
| TRIALS PURSUITS YOUNG | 14.95 | KONAMI'S CON OF HTS | 9.95 | 7.95 | ROCK N WRESTLE | 9.95 | 7.95 |
| PLASTIC EDITION | 7.95 | AMX LEVEL 2 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 2 ADVENTURE | 9.95 | 7.95 |
| YOUNG PLAYERS QUESTIONS | 7.95 | AMX LEVEL 3 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 3 ADVENTURE | 9.95 | 7.95 |
| IRISLAND FAN | 7.95 | AMX LEVEL 4 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 4 ADVENTURE | 9.95 | 7.95 |
| YE AR GONG FU | 9.95 | AMX LEVEL 5 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 5 ADVENTURE | 9.95 | 7.95 |
| ALIENCE | 9.95 | AMX LEVEL 6 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 6 ADVENTURE | 9.95 | 7.95 |
| HARDBALL | 9.95 | AMX LEVEL 7 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 7 ADVENTURE | 9.95 | 7.95 |
| COP OUT | 9.95 | AMX LEVEL 8 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 8 ADVENTURE | 9.95 | 7.95 |
| MAJOR PICE | 9.95 | AMX LEVEL 9 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 9 ADVENTURE | 9.95 | 7.95 |
| ROAD LONG ROAD | 9.95 | AMX LEVEL 10 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 10 ADVENTURE | 9.95 | 7.95 |
| THEY STOLE A MILLION 1 | 9.95 | AMX LEVEL 11 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 11 ADVENTURE | 9.95 | 7.95 |
| HTTS 10 YRS 3 | 9.95 | AMX LEVEL 12 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 12 ADVENTURE | 9.95 | 7.95 |
| TRAMPET | 7.95 | AMX LEVEL 13 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 13 ADVENTURE | 9.95 | 7.95 |
| THAT | 7.95 | AMX LEVEL 14 ADVENTURE | 9.95 | 7.95 | AMX LEVEL 14 ADVENTURE | 9.95 | 7.95 |

* DENOTES TITLES THAT ARE NOT YET RELEASED. PLEASE RING TO CONFIRM AVAILABILITY.

MANY MORE TITLES IN STOCK. WIDE RANGE AVAILABLE FOR AMSTRAD AND ATARI ST. MORE INFORMATION AND ACCESS ORDERS ON 01-305 0521.

WHY NOT VISIT OUR DISCOUNT SHOP AT 3 STATION CRESCENT, WESTCOMBE PARK, BLACKHEATH, LONDON SE7. RIGHT UNDER WESTCOMBE PARK RAILWAY STATION ON THE SOUTHERN REGION. OPEN ON SATURDAYS ONLY FROM 10.30 UNTIL 6.00PM. WEEKDAY CALLERS BY APPOINTMENT ONLY.

POOLSMASTER

GUARANTEED WINS • GUARANTEED WINS • GUARANTEED WINS

ASIRUS SOFTWARE presents the most up to date method for winning the POOLS ever devised. So much so that the company has decided to LIMIT the number of copies available to 3,000 which means it is FIRST COME FIRST SERVED. Whatever method you have used in the past, whether it be FORM, MAGIC NUMBERS, or UP DATING OF DATA you can now forget: WHY: because POOLSMASTER eliminates all CHANCE, giving you a method which can be used ALL YEAR ROUND, with consistent returns of DIVIDENDS.

Developed over the past 2 years accuracy was our aim in finding a WINNING method, we did it, and called it POOLSMASTER. Coupled with easy to follow on screen instructions, which enables the user to see how POOLSMASTER operates, and why it works, and also showing how to STAKE and PERM your coupons to give MAXIMUM returns, making it a complete package.

To obtain a copy of POOLSMASTER, and remember there are only 3,000 copies available, fill in the form below and together with a remittance of £30 send to:

ASIRUS SOFTWARE
54 Doverhouse Road, Putney,
London SW15 5AU

PDs/cheques payable to
ASIRUS SOFTWARE price
includes POST and PACKAGE

GUARANTEE

ASIRUS SOFTWARE guarantees that POOLSMASTER will give you a winning dividend/dividends within 12 weeks or less. Should POOLSMASTER not perform as stated above, then return the program for a £30 refund.

POOLSMASTER is available for: ALL SPECTRUMS, ALL AMSTRAD CPCs, and COMMODORE 64/128 (all programs supplied on cassette)

I enclose cheque/P.O. for £.....

NAME: _____

ADDRESS: _____



Postcode: _____

Computer: _____

PLEASE ALLOW UP TO 28 DAYS FOR DELIVERY

POOLSMASTER © 1986

Looking out for number one

Martin Bryant tells you what to look for in a computer chess program

Video games may come and go, but chess programs will just grow bigger and better every year. In this article I will take a look at what you should expect from the best micro programs currently available.

Certain chess programs are already very well-known – for example, *Colossus Chess*, *Cyrus*, *Psion Chess*, *Superchess* and *White-Knight*. All of these programs have existed for several years and are written by enthusiastic computer chess programmers. This is an important guide to the quality of the program, because today's chess programs have reached such a level that no 'new' program could be written by a casual programmer owing to the years of development that have gone into these programs.

Of course, an overall verdict of the 'best' program is impossible because people have different requirements and expectations. Also the hardware which the programs run on varies greatly, so direct comparison is impossible.

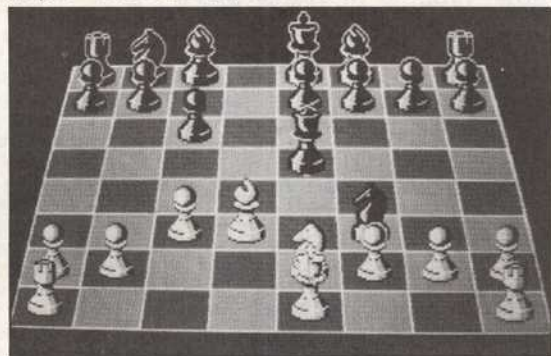
The best program should offer all of the following features: good playing strength, 3D and 2D board, analysis display, anticipation of opponent's move, openings book, comprehensive manual, useful sounds, alter-position, backward/forward step, blindfolded play, clocks, colour adjustment, force move, joystick move entry, legal moves display, modes of play, new-game, next-best move, orientation change, playself, problem solving, replay game, save/load games and supervisory mode.

Gone are the days (thankfully) of chess programs which couldn't even beat a casual player on a bad day – and even took ages over each move. The programs that took minutes (even hours) to solve a simple mate-in-two are also obsolete – although some may still be available.

Today's programs can give even the best club players a run for their money, on tournament or blitz levels, and mate-in-two should now take at most a few seconds. Several programs are now able to spot mates-in-five or even six on blitz levels in the middle game.

Most modern programs will now think

on the opponent's time by anticipating your move and continuing its search. If you play the same move, it can save itself a lot of time and thus search further ahead and play much better. Problem



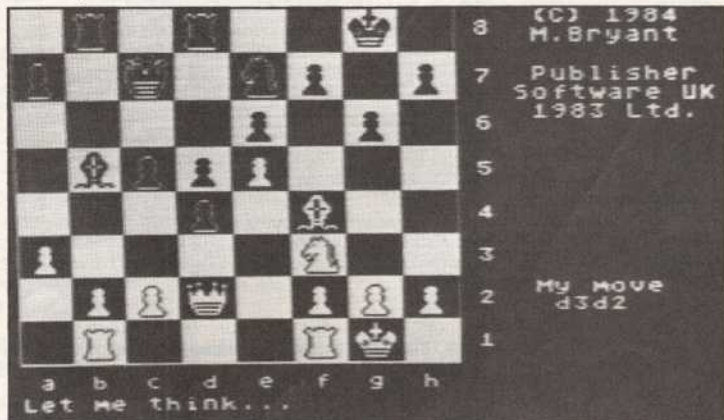
*Psion Chess (above),
Cyrus and White-Knight:
"written
by enthusiastic
computer chess
programmers"*

solving has also come a long way. *White-Knight MK12* is actually used by British International Chess Grandmaster John Nunn to aid in problem solving and design. If a Grandmaster finds it helpful, think how much it could help club players – or anyone else interested in chess

problem solving. The better programs offer the ability to check problems for 'cooks' – an alternative solution to the one the problem-author had intended. *White-Knight* has been used extensively to check hundreds of problems in this way and has found several in error. (A problem is considered spoiled if it has more than one solution.)

Nowadays, chess programs usually offer more than the standard levels. The move is towards modes-of-play and levels being totally user selectable by entering an average move time you wish to play at, thus providing thousands of levels. The new modes-of-play add to the normal average move times levels and they include easy play, where the program deliberately plays weaker moves so that even novice players stand a chance; all the moves where the whole game must be completed within a certain pre-agreed time – as in most casual games in chess clubs; equal time, where the program kindly monitors your rate of play and adjusts its own to fit in with yours; infinite search where the program just looks further and further ahead to be told to stop – useful for postal games where you can just leave the computer to ponder position overnight – or even all week!

Martin Bryant is the author of Colossus Chess.



Give your Amstrad an Emu

Mark Jenkins with new packages for Ataris and Amstrads

It's interesting to see an Atari 520ST/1040ST music package which isn't exclusively dedicated to the use of the micro's output port to control Midi synthesizers. It's not all that expensive to buy a couple of Midi synths, but those whose interest in music is, shall we say, budding, will prefer to get started without having to make any further investment than the one already represented by the micro.

Musix 32 is a German package developed by Tommy Software, and therefore comes with a handbook in typical Teutonic English. Sample: "I have to do the thankless task again of writing a preface. When you ask now, if it is really so difficult to write such a text, take attention at the way in which such prefaces are written". The way in which the handbook is written is pretty clear though; it takes us through the cursor functions, music and sound programming, tuning, printout and Basic/Pascal program use. The prime use of the program is to simplify music and sound creation using the Atari's built-in sound chip, and so inserting your results into games programs is a vital facility.

Musix sets up a Ram Disc which must leave about 100K of memory for the program to operate; you can copy *Musix* but will still need the original disc to start it up.

The main screen shows a selection of note lengths, a pair of music staves, and a wide selection of alternative functions which make full use of the GEM operating environment. The cursor can take the form of a note, rest, sharp/fast or special symbol such as delete, depending on what mode you're in, and direction arrows at the sides of the screen scan through the music which has been programmed.

Time signatures from 1/8 to 8/4 can be programmed and each of the three available sound channels works independently, so you can add to or delete them as well as tuning Channel A. In fact it's only Channel A which has a choice of envelopes, with piano-like plunk available as an option.

It is possible however to print out music with a choice of 16ths per line, line distance, lines per page and left margin spacing, while the Cut, Copy and Paste functions which use a clipboard method

"Musix seems a versatile way of including music in games and other programs, but it isn't the best bet for the more serious composer"

of operation allow you to move sections of notes about the screen. The clipboard section is shaded in black and a scissors symbol indicates that you can cut out and copy this section as many times as necessary.

There are several demos on the program disc with a minimally classical leaning, and you can store your own compositions in normal form and in XBIOS form for use in your own programs (XBIOS files can't be read or edited by *Musix* so you really ought to store pieces on both forms). A normal Pascal load routine makes your files available for use in games or other programs - sample programs are given in the handbook for Pascal, C and GFA-Basic.

Overall, *Musix* seems a versatile way of including music in games and other programs. Until the envelope and Midi options become available it isn't the best bet for the more serious composer, but at least registered users will be entitled to cheap updates when these come along. You can contact the marketing company, Creative Computer Design (CCD) at the address given below.

On to EMU, an Electronic Music Utility on tape for the Amstrad CPC 464 which wisely avoids using icon operation in favour of clear, English labelling. The opening menu offers Env, Ent, Voice, Music, Save/Load Data and Save RSX; the examples and help notes are on the B-side of the cassette.

Loading a demo is in fact quite complex, requiring a lot of moving about on the Load Page and the main menu page, although the music display (in three-part harmony on a conventional music staff) is quite impressive when you eventually



do come to it. Press *Copy* to make the music play and you'll hear a reasonably complex, slow ballad picked out in three stringy voices.

The screen display allows you to mute voices, set tempo, count notes remaining, set key, time signature and clef and choose new note and rest values to insert, and also shows you what note is playing or being programmed at any particular time on a miniature display of a one-octave keyboard. Notes are inserted one at a time using the Edit functions, or "live" from the top two rows of micro keys used as a basic piano keyboard. The software will record your performance and notate it on the screen - quite an achievement.

You can tie notes together, enter all sorts of score markings, and change the sounds used with the Env page and the Ent page, the latter defining envelope repeats. The former is a comprehensive display (within the limitations of the Amstrad's sound chip) of the time, volume and timbre of a note, and gives as much control as you could reasonably expect over the sounds available. You can vary the overall volume during a piece of music and save a piece normally or in RSX (Resident System Extension) form for use in a Basic or machine code program.

The handbook has a comprehensive list of keystrokes for programming plus a useful summary of the *Block Copy* function which allows you to reproduce any section of any voice as many times as you like. Overall, EMU seems powerful but fiddly. Some of the terms, such as ENV and ENT, are too easily confused (as are some of the displays) and the method of moving around the program is unnecessarily complex.

But it's certainly a powerful package, leaving little more to be wrung out of the Amstrad's sound chip. The options of real time or single note entry are very welcome, and of course the ability to incorporate music in your own programs will be much appreciated by those who find music and atmosphere every bit as important as general game play.

CCD, D. Beyerlein, Burgstrasse 9, D-6228 Eitville, West Germany.
EMU - Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS (0742) 753423.

CALL SUSANNAH KING on 01-437 4343 FOR SEMI/DISPLAY ADVERTISING

SOFTWARE

WINDOS II

WINDOS II

WINDOS II is a set of THREE programs for the QL. Spectrum which will really open up the world of the window, icons and menus. (Of course, only window icons are usually seen on more expensive computers, but using WINDOS II you too can create them.) From BLOBS.

The three programs in the package are —
WINDOS II — this is the heart of the system and provides all the graphics tools you will ever need! (More than! From BLOBS, you can)

OPEN and close up to 32 windows.
PLOT (lines, ellipses, arcs, points) in a multitude of modes, as shaded.
PRINT text of any size and any style, defined by BK.

Grab areas of the screen and enlarge/reduce or move them.

DL — this is an advanced character designer, and all the screens show those, it is an acronym, and character sets for use in your WINDOS II programs.

DOODLE — this is an icon designer/speller driven or you can design icons using the graphics tools. You can then be saved back to your own character sets, or copying to a printer, or you can try and spell or back to the task, DOODLE. (Spectrum does just what can be done, so DOODLE is without machine code.) This is what DOODLE can do.

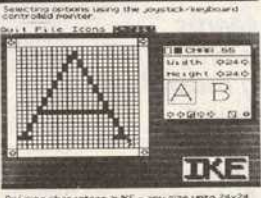
IK — draw box, ellipse, point — all of these can be shaded.
DOODLE — you can include text of any size in your picture, as seen on the ad.
IGNAL — can copy detailed work, and edit them, if you moving parts of your picture back around the screen.

Set brush size — for when you want thicker lines.
DOODLE — none of worth the asking price, but with WINDOS II and IK, as well, how can you afford to miss out! But don't miss! Take the word for it, this is what (your) version of Popular Computing Monthly said — (Oct 89).

QL — The WINDOS II environment looks very nice indeed.
 the windows open and close themselves very fast indeed.
DOODLE has many of the features of advanced packages.
WINDOS II (including) represents value for money with a clear menu.

All of the programs are reproducible, and the manual gives full details on how to make the most of WINDOS II.

WINDOS II, CHRISTMAS OFFER. FOR MORE AND FOR FUN!
ALL THIS FOR JUST £12!
 Available on cassette or microdrive cartridge for the same price. Send cheques/P.O.s to:



Word jumpy in DOODLE — this ad. prepared using DOODLE, comes under the surge of your glass.

★ **QL SOFTWARE** ★
SPECIAL CHRISTMAS OFFERS

★ **CHARACTER TOOLKIT £5** ★

This package contains all you need to create and use your own character sets on your QL. It also contains routines that allow you to print characters of an infinitely variable size anywhere on the screen. To help you design your characters sets we have even included a special designer program which makes it even easier.

★ **ICON TOOLKIT £5** ★

This package contains all you need to turn your QL into an icon controlled super micro — takes the tedium out of typing, unlike some systems, ours is fully programmable. You can program the icons to do anything you like — you can of course redesign the icons themselves and we have even included a special designer program to make the task that bit easier.

This toolkit also contains lots of new graphics commands, all of which have the ability to draw using user defined patterns, not just solid lines. There is even a new fill command that will fill any shape with any user defined pattern (Features like these are normally only to be found in the most expensive of drawing programs). We even throw in a special pattern designer so that you can design your own new patterns at leisure. There are also 2 Epson compatible screen dumps, a print spooler and an on screen notepad.

★ **GAME TOOLKIT £5** ★

This toolkit contains everything you need to create fast animated arcade games on your QL. It also contains extra routines to allow you to produce multi-tasking tunes (like the ones found in all the best arcade games). You can have up to 32 sprites all of which can go without saying that our sprites are some of the fastest and smoothest around. A sprite designer is also included.

★ **COMPLETE TOOLKIT £10** ★

All three toolkits on one cartridge offering a substantial saving — probably the best toolkit ever!!!

★ **SOUND EXPERIMENTER £5** ★

This is probably one of the most original and interesting packages ever written for the QL. Using this package you can turn your QL into a sort of primitive digital synthesiser. The package actually allows you to draw sounds on your QL screen and then play them back either forwards or backwards in whole or in part, so if you're at all interested in sound synthesis or you just like making silly noises, then this is the package for you, and there is also a special program included to help you get better acquainted with the super basic beep command (saves hours of messing about trying to find the sound you want).

★ **BLOBS £3** ★

THE RUBBERISED ASTEROIDS GAME — ADDICTIVE ARCADE ACTION

Send cheques or P.O.s to:

SMILING SOFTWARE
 10 Fir Road, Marple, Stockport SK6 7QN

(89)

CLASSIFIED ADVERTISING RATES:

Line by line: 30p per word, minimum 20 words.

Semi Display: £7 per single column centimetre minimum length 2cm. (Please supply A/W as PMT or supply rough setting instructions.)

Conditions: All copy for classified section must be pre-paid. Copy date 7 days before publication.

For phone bookings
 Ring Susannah King on 01-437 4343.

Here's my classified ad.

(Please write your copy in capital letters on the lines below)


| | |
|--|--|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Please continue on a separate sheet of paper.

I make this..... words, at.....per word, plus VAT....., so I owe you £.....

Name..... [Please add 15% to these rates for VAT]

Address.....

 I enclose a cheque for this amount or please charge my Access/ Visa credit card number:

Telephone.....

Please cut out and send this form to: Classified Department,
 Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP.

AB COMPUTERS & ELECTRONICS

SPECIAL CHRISTMAS OFFER

5% additional discount on anything for anyone who sends in this advert with an order

★ SPECIAL PROMOTIONAL PRICES FOR THE AMIGA

- ★ Amiga System 1 only £975
- ★ Amiga System 2 only £1175
- ★ On site maintenance; 1st year parts/labour; FOC with every Amiga

Offer lasts until end of November 1988

★ **COMMODORE** C128, C128D, 64C, Compendium (64C + mouse + cassette unit + graphics software + 6 games); monitors and printers; disk drives; books, accessories and full range of software available.

★ **ATARI** 1040STF + mono monitor £799, 1040STF + col. monitor £999, 520STM £299, 130XE 128k £113, SM125 mono monitor, SC1224 col. monitor, 1029, 1027, 1020, SMM804 printers, SF314, SF354 floppy disk drives, SH204 20M bytes Winchester drive; accessories, books and full range of software available.

★ **AMSTRAD** CPC464, 8512, 8256, 1512.

★ **BBC** Master 128 £433.91, Compact mono system £467.69, Compact col. system £597.69, Compact TV system £397.69, Compact entry system £383.69; Dual disk drive £303.48, Single disk drive £155.85.

★ **IBM/COMPATIBLES** NEC, Olivetti.

★ **PRINTERS**, Laser Special QMS k8 £1985, MP201 (P) dot matrix £389, 4MP200 (P) dot matrix £328, MP165 dot matrix £228, Canon P.J. 1080A colour only £260.83, Citizen 1200 only £156.62, Panasonic KX-P1080 only £138.26, Juki 5510 only £349, Commodore MPS1000, MPS803 and other dot matrix and Daisy Wheel printers available, Star NL-10 £199.13, Teaco UP 1814 £199.13, DXY-880A Roland Plotter £695.85.

★ **SATELLITE TV SYSTEM**, SX1600 Receiver + Northsat dish + Polarator & LNB only £694.78.

★ **MODERN AND COMMUNICATIONS PACKAGES**, Miracle WS4000 U2123 £149.95, Miracle WS3000 V2123 £295, Habacom £43.43, Sascom £43.47.

★ **SOFTWARE** SAGE Dealer, CAD/CAM, ARKEY £1,735 Video digitizer £260, Habawriter II £65.17, Habaview £62.17, Habamerger £34.73, Habaspell £17.35.

★ 3 1/2 & 5 1/4 inch Winchester; up-grade cards; 2nd processors; modems; electronic mail box; telex; 3 1/2 & 5 1/4 floppy disks; ribbons, cables, continuous paper; graph paper for the P.J.1080A printer.

★ **SPECIAL PROMOTIONAL OFFER**

★ Up to £100 of free software for every purchase of Atari 1040STF.

★ 15% off all additional hardware purchased in the 1st year.

★ 5% off all additional hardware purchased in the 1st year.

★ Fast, reliable low cost repair service for all computers.

★ Mail orders welcome - Access/American Express.

★ Export enquiries welcome.

★ All prices exclude VAT and P&P

★ Call us on (01) 568 7149 5688357.

Great West Road, 173 Thornbury Road, Osterley,
Isleworth, Middlesex TW7 4QG.

Telex: 946240 CWEASY G Ref: 1900 8215

AMSTAT

AMSTRAD STATISTICAL AND MATHEMATICAL SOFTWARE

Fully available for BOTH PCW AND CPC ranges

AMSTAT 1 (v1.211) - means, standard deviations, variance, skewness, kurtosis, one sample, two sample, and paired t-tests, 1-way AOV with single and multiple confidence intervals, 2-way AOV, correlations, regressions, histograms, scattergrams, transformations, file storage and retrieval, output to wordprocessor file, manual. Any number of variables to a total of 500 (+) data points.

AMSTAT 2 - 27 nonparametric tests in 4 programs providing a "complete Siegel". Binomial, Chi-square (3), Kolmogorov-Smirnov (2), Runs, McNemar, Sign, Wilcoxon, Walsh, Randomisation (2), Fisher, Median (+extension), Mann-Whitney, Wald-Wolfowitz, Moses, Cochran, Friedman, Kruskal-Wallis, Contingency, Spearman, Kendall, Kendall partial, Concordance.

"Tremendous value" - Tony Kettle, Popular Computing Weekly, 8-14th May 1988.

"I now give it an unreserved recommendation..." - Jo Stork, Business Computing with the Amstrad, July 1986.

AMSTAT 3: FORECASTING

An array of business oriented mathematical and statistical software: Linear and Polynomial regression, Trend and Seasonal Variation, Multiple Regression Analysis, Transformations, Exponential Smoothing, Adaptive Filtering. Graphic display, full print-out, manual suited to immediate use and for teaching.

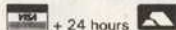
AMSTAT 4: RESOURCE MANAGEMENT - LINEAR PROGRAMMING MODULE

General Purpose Linear programming + Specialised Transportation and Assignment variants. Capable of analysing and solving problems of sequencing, scheduling, blending, and allocation of scarce resources. 40 page manual, 18 worked examples.

The programs have applications in research of all kinds, education, sales, production planning, work and method study, financial planning, personnel, social work etc.

| Price list: | CPC | PCW |
|----------------|--------|--------|
| AMSTAT 1 v1.2 | £25.95 | £27.95 |
| AMSTAT 2 v1.0 | £39.95 | £39.95 |
| AMSTAT 3 | £25.95 | £27.95 |
| AMSTAT 4 | £25.95 | £27.95 |
| AMSTAT 1+2 | £49.95 | £49.95 |
| AMSTAT 1+2+3+4 | £99.95 | £99.95 |

All prices include P&P within U.K.



Cheques, P.O.s to:

S. C. COLEMAN

33 Leicester Road, Ashby-de-la-Zouch, Leics LE6 5DA. Tel: 0530 415919
(AMSTAT 1 v1.1 for the CPC still available at old price) (27)

SOFTWARE

CASH FROM YOUR MICRO

Have you ever thought of using your computer to make money? Well, here's your chance to turn your hobby and micro skills into a home based income. We can show you, step-by-step, how to cash in on this tremendous market, full or part time. High earnings are easily possible. You only need to be a micro enthusiast to qualify.

For free details of this unique opportunity, send a loose stamp to:

WESTLINK PROMOTIONS (CW4)

108 George Street
Edinburgh EH2 4LH

(120)

HOME ACCOUNTS

Put your home in order! Probably the best home use for your computer! Comprehensive coverage of bank accounts, credit cards, HP, standing orders etc. Inbuilt accuracy check for all transactions. Cashflow projection. For all Amstrads, Commodores and Spectrums.

£9.95 or FREE details from:

DISCUS,
FREEPOST,
ILFORD IG1 1BR
Tel: 01-514 4141
(24 hours 'live') (15)

FIXED ODDS FORECASTER GUARANTEED WINS!

FOR THE ACORN ELECTRON AND BBC

★ Displays in seconds: Forecasts ★ Star Bets ★ Bankers ★

Form-Finder II has been produced with the fixed odds client very much in mind. And because 'Bankers' (best homes) selected by the program have an **80% minimum guarantee**, we can confidently predict a suitable perm, eg. **8 from 10 Bankers** on your long list, will bring you **wins within 13 weeks**, including any stakes lost in that period. Your program gives you the various choices of bets that you can make that are covered by your **guarantee**.

Form-Finder II's unique formulas consistently produce results even on the extremely difficult sections lists. Whether your bet preferences are for **pools, individual bets, fixed odds** or any other football forecasts, **Form-Finder II** is the one complete package that is a 'must' if you want to take more than chances!

★ Displays in seconds: Pools Values ★ Match or Coupon Numbers ★

For your copy of **Form-Finder II** complete the priority order form below and send to: **ALLAN DATA, 1 Lorn Road, Dunbeg, Connel, Argyll PA37 1QG**

Available only to *Popular Computing Weekly!* Please send in form below

PRIORITY ORDER

PCW

Please rush me within seven days, my copy of **Form-Finder II** for my **Electron/BBC**. I enclose cheque/P.O. No. for £9.00 (cassette only) made payable to **ALLAN DATA**, which I understand will be refunded to me in full should the program not perform as stated above within 13 weeks.

Please print **CLEARLY**.

NAME

ADDRESS

400/800 **LOOK** NOW
XL/XE **ATARI OWNERS** ST

Are you having difficulty finding suitable software? If so, then look no further. We have available for both the UK and overseas one of the largest selections of both UK and American titles to choose from. Games and Utilities for all ages. Hardware and software titles at discount prices and special deals regularly being offered. If you would like further information please send a large stamp to:

CHAMWOOD PRODUCTS AND GAMES
204 Warwick Avenue, Queens, Loughborough
Leicestershire LE11 8SU
Tel: 0509 412804

SOFTWARE SERVICES

| SPECTRUM | CBM 64 | | |
|-----------------|--------|-----------------------|-------|
| Boulder | £3.25 | Thing on a Spring | £3.25 |
| Nightshade | £3 | Thing on a Spring | £3.25 |
| Jet Set Willy 2 | £3 | Red Hawk | £3.25 |
| Sun Flight | £3 | Knights of the Desert | £3 |
| Combat Lynx | £3 | Combat Leader | £3 |
| Max Headroom | £3.25 | Ghost Chaser | £3 |

FREE POSTER WITH EVERY ORDER!

| AMSTRAD | PCW |
|------------------|-------|
| Money on the Run | £3.25 |
| Quest Probe | £3 |
| Super Sleuth | £3.25 |
| Nightshade | £3 |
| Geoff Capes | £3 |

Same day despatch. P&P 60p - over £10 post free - send SAE for 12-page catalogue. Cheques payable to 'Software Services', Daneshill, Brookhill Road, Copthorne, Crawley RH10 3PB. (117)

FOR SALE

C64 pack
£179.
5 1/2 discs,
£7.99 box 10

THE COMPUTER DEPOT
205 Buchanan Street,
Glasgow, G1 2JZ
041-332 3944

****C64 £1.99**
Neural Zone
Moon Shuttle
Breakdown
Story Maker
Frank
City Mission
Thunderbirds
Microchips
Checkers Chess
Space Collins
Hunchback
School
Mastermind
Wildfire Pattern
Spartan

****Spec £2.99**
Show Jumping
Foil Racing
Play Card Right
Wildfire Pattern
The Flanets
Tubonic
Chocore
Chicken Chase
Space Collins
Hunchback

****C64 £2.99**
Hardball
Art of Tawood
King Size
Eight Warrior
Terrormonia
Law of the West
Blackwings
Beachhead 2
Sam Fox
Gnomes
Monty on Run

****C64 £3.99**
Pyracnae
Beachhead 2
Hanging
Hansen Torch
Space Mission
King Size
Rugby Manager
King Kong
Basketball
D1 Destruction
Nornad
Light Snooker
West Bank
Gyroscope
Monty on Run
Saboteur

****Spec £2.99**
Suffragette
Zapp Sizzlers
Way of the
Falklands 82
Sonic
Solo Million
Philly
Half of 1 game
Philly
Summer Gem 2
Battle Mountain
Battle Britain
You Are K-Fu
Fairlight
Lindun
Wizardry
Saboteur

****Spec £3.99**
Crash Smashes
Hyperports
Way Egg First
Way of Tiger
Hell Man
Movie
War on Want

C64, Vic20
power supply
ONLY £19
incl p&p

Post Free on orders over £5. Add 50p if under £5. Airmail order over £10. add £1. Send SAE for full list, state machine. Also C16/+4, BBC, Electron, C64 discs, and lots, lots more. TRADE ENQUIRIES INVITED.

Christmas Special Offer

AMSTRAD HARDWARE

*CPC8128 (colour) £365.00
*SPECTRUM 128+2 (gift pack) £145.00
*PCW8256 £407.00
*PCW8512 £510.00
*CPC8128 (green) £265.00
*CPC484 (colour) £265.00
(with £100 free software) £265.00
**DMP2000 (printer) £150.00
**DDI-1 (disc drive) £140.00
**FDI-1 (disc drive) £86.00
**FD-2 (2nd disc drive for PCW) £132.00
***S232 INTERFACE (for PCW8256) £58.00
***F FLOPPY DISCS (box of 10) £30.00
JY-2 JOYSTICK £9.00
DISC DRIVE CONNECTOR LEAD £6.00

AMSTRAD SOFTWARE

(Software prices incl. VAT, P.&P.)
MINI OFFICE II (disc) £14.95
MASTERFILE III (disc) £29.95
TASWORD 8128 (disc) £18.50
PROTEXT (disc) £18.95
SHOGUN (disc) £11.50

AMSTRAD PCW SOFTWARE

SUPERCALC 3 (PCW) £39.95
DR DRAW/DR GRAPH (PCW) £35.00
TASWORD 8000 (PCW) £18.50
TOUCH-N-GO (PCW) £19.95
POPULAR ACCOUNTS (SageSoft) £89.95
POPULAR STOCK & INVOICING (SageSoft) £49.95
DATABASE/PAYROLL (SageSoft) £49.95
JEWELS OF DARKNESS (+6128) £14.95

ALL AMSTRAD HARDWARE AND SOFTWARE AVAILABLE
ALL PRICES INCLUDE VAT, MAIL ORDER CUSTOMERS
PLEASE ADD **£5.00, **£4.00, ***£2.00 FOR P.&P.

NEWCROWN COMPUTERS LTD

98-100 HIGHTOWN ROAD, LUTON, BEDS LU2 0DQ (U.K.)
TEL: 0582 455684 (103)

BITS & PCS

- ★ Computers - £30
- ★ BBC's, Amstrads, Electrons, 64's, Vic 20's.
- ★ 5 1/4" Disk - £4 for 10.
- ★ 3 1/2" D5/00 - £22 for 10 (boxed in plastic library cases).

TEL: 0536 516079 (125)

Atari 800 XL / 130 XE
Essential Utilities

Transdisk Version 3.0

The most powerful tape to disc system for the Atari now made even better. Transfers commercial, machine code, "boot" cassette games or any other software to disc. Single, multi-stage and new even non-standard format tapes present no problem to Transdisk. Plus, enjoy the convenience of loading and running your newly transferred software from an autarun disc menu. No other tape to disc utility for the Atari is as powerful or successful as this! £19.95 inc. Supplied on disc with instructions.

The Freezer!

An amazing new utility for the Atari! "Freezer" programs while they are RUNNING on your computer. The Freezer then takes over control and allows you to make a back-up copy of the frozen program. The back-up copy will load, and restart from the frozen point, on ANY Atari XL/XE computer, independent of The Freezer! Freezes disc OR tape programs even those that are heavily protected! Easy to use - hit one key to freeze the program in memory then insert a blank disc and hit another key to save it - that's it! £19.95 inc.

Send an S.A.E. or phone for more details of these utilities.
Make Cheques or P.D. payable to DIGICOM and send your order to:

DIGICOM

178 Bradwell Common Boulevard, Milton Keynes, Bucks MK13 8BG. Tel: 0908 663786. (121)

BLANK CASSETTES

WITH LIBRARY CASES

| | | | | |
|-----|-------|-------|-------|-------|
| | C10 | C15 | C20 | C30 |
| 20 | 7.50 | 7.70 | 7.90 | 8.70 |
| 50 | 18.00 | 18.10 | 18.30 | 18.50 |
| 100 | 29.00 | 30.00 | 31.00 | 35.00 |

Fully inclusive (COD 65p extra)
Superior Tapes. Don't Settle for Less!

DISKS

10 5 1/4 DS/DD £8
inc plastic case
10 3 1/2 SS/DD £17

MEMOTECH COMPUTERS
AND ACCESSORIES

| | |
|--------------------------------|---------|
| MTX 512 COMPUTER | £75.00 |
| DMX 80 PRINTER | £150.00 |
| R8232 | £35.00 |
| PASCAL ROM | £35.00 |
| SPECULATOR ROM | £35.00 |
| 1/2 mb. DISK DRIVE & INTERFACE | £110.00 |
| 1 mb. DISK DRIVE & INTERFACE | £210.00 |

All the above prices are fully inclusive. We stock the entire Memotech Range. Orders/Enquiries to:

OK HOME COMPUTERS
82 CHESHAM ROAD
WILT. BA2 1BH
24-Hr Phone Service 0793 095034 31P/27

FREE AMSTRAD
TRAINING COURSES
FOR MEMBERS

FOR DETAILS RING:
THE COMPUTING CLUB
01-767 3705 (106)

REBORN RE-INKING

Why pay through the nose for a new fabric ribbon cassette for your printer when ALADDINK can re-ink your old one? Send your old fabric ribbon cassette together with £2. We will re-ink it and advise on future prices. Most markets catered for. Not large industrial ribbons.

ALADDINK, (Dept PC), 4 Hurkur Crescent, Eymouth, Berwickshire TD14 5AP (109)

COMPUTER HIRE

TO HIRE A COMPUTER AND/OR PERIPHERALS BY THE WEEK OR MONTH RING 01-607 0157 or 01-997 6457 WE SPECIALISE IN BBC AND ALSO HAVE A RANGE OF AMSTRAD COMPUTERS FOR HIRE

COMPUTER HIRE SERVICES
294A CALEDONIAN ROAD
LONDON N1 1BA (9)

YOUR PERSONAL CENTRONICS PRINTER



- FAST 50/100cps FAST
- DRAFT MATRIX PRINT
- NEAR LETTER QUALITY
- SUBSCRIPT SUPERSCRIPT
- CONDENSE EMPHASIS
- 96 CHAR+48 EURO+16 MATHS
- EPSON/IBM PC GRAPHICS

128 Station Rd
Glaston
Somerset
BA4 5BB
TEL (0533)
313531. HALL

OL INTERNAL UPGRADE TO 640K OL

Including VAT £99 including P&P
Includes easy to follow step by step fitting instructions.
Fitted by us... £129 inc.
Retained within seven days. We will fit in your home or office within 50 miles of Manchester. Phone orders from Access card holders welcome.
CANDEAS LIMITATIONS
1 Rochester Avenue, Prestwich, Manchester M25 8LB
Tel: 061 780 2472 (126)

PUBLIC DOMAIN SOFTWARE

For IBM PC compatibles - PC - Write, PC, Outline, Program, Arcade Games plus 100s more. NO MEMBERSHIP FEES - FREE NEWSLETTER. Also distributed commercial software, say: TAPWOT £22.95. Send stamps for details to:
PC-STAR
26 BEECHLEY DRIVE, CARDIFF (125)

MICRO-AID

25 FORE STREET, PRAZE, CAMBOURNE, CORNWALL (127)

- ★ Citizen LSP10 printer, £225 including VAT and carriage.
- ★ Epson P40 printer, £42.50.
- ★ Listing paper, £12.95.

*** COIN IT ***

Accurate and addictive 4 reel fruit machine simulation designed by a freelance A.W.P. designer. Features include: Roll Back, Flowers, Gamble, Judge, Autoplay, Level, Stop-A-Win, Super Saver, Reward Win, Super Cash, Fruit, Stacks, Exchange, Top Up volume and much more. Full sound and graphics, professionally duplicated, printed and boxed. ONLY FIVE POUNDS (124)
£5 DEPENDING ON HALFLEET. £5 DEPENDING ON PETERBOROUGH (125)

SERIOUS 1 MICRO COMPUTER

512K twin floppy drive, VDU keyboard, Silicon office WP software, Ricoh 1300 printer - reference manuals, blank discs and in good working order. £995. Tel: 0525 372156.

SORD COMPUTERS and software

bargain. S.A.E. for lists or phone 0279 417636. Playfair Projects, 133 Hookfields, Harlow, Essex CM18 6QL.

AMSTRAD COLOUR CPC 6128,

hardly used plus Laser Basic, Easiwaiter, Graphics Animator, Locksmith, Games - Sorcery, Dragoncore, Sabre Wulf, Knight Shadow, Spindizzy, Books - Advanced Graphics, Basic and Beginners m/c plus Q-shot II Joystick, £350 o.n.o. Pendman 0803 866344.

ELECTRON PLUS 3 unrequired gift - probably the last 31 available since all stocks completely sold out - £129.95. Tel: 01-778 5350, eve/weekends.

LEARN MORE ON THE AMSTRAD

464/664/6128 from an absolute beginner to an experienced radio ham, all levels of skill catered for. Tape - £5.50, Disk - £9.90. Send cheques, POs to: Lambden Electronics, PO Box 12, Ickley, West Yorks LS29 7TA.

ATARI 800VL: Disk drive: £100. Software, VGC: £100. Tel: Sunjeeve (02774) 58188, evenings.

ZX PRINTER paper for sale. £6 per box of 5 rolls. Tel: 01-986 8378.

PET 2001 (4032 upgraded) £120. 8050 D/Drive £300. 4022 printer £125. Softcopy CP/M 80 + Dbase II £200. Datasheet £20 (or £550 the lot). Tel: 0797 229498.

AMSTRAD CPC 464, colour monitor, printer, speech synth, light pen, over thirty games, excellent condition. Original packing boxes. £350 o.n.o. Tel: 317 9363 for 46 pm.

The 1st choice EXPRESS SPECTRUM, BBC and COMMODORE REPAIRS!

SOFTWARE
RRP £39.00 FREE WITH
EVERY REPAIR

**WHY PAY HIGH
'FIXED'
PRICES**

Spectrum
repairs between
£9 and £20

BBC repairs
between
£14 and £45

Commodore
repairs between
£14 and £35

*Spectrums only
(We do not charge you for our
fancy premises by charging
high 'fixed' prices)

Reputations take time to build,
we have been repairing ZX 81's,
Spectrums, QL's, Apples and
BBC's professionally, for 2 1/2
years - who is coming second?

In all U.K. with White-u-Wat repair
with INTERNATIONAL repair service!

To charge LOW PRICES for the smaller
repair (e.g. £9 for keyboard faults)

FOR LOW PRICES - "My computer
blew recently, I took it to MANCOMP,
who fixed it in 8 minutes and for less
than £10! They are local, 'clued up',
and blindingly efficient!" 4 HEATONS
DIGEST.

FOR PROFESSIONALISM - "Of all the
repair companies 'Sinclair User' spoke
to, MANCOMP seemed the MOST
PROFESSIONAL, when it came to advice
and a helpful attitude" AUG 85.

FOR HONESTY - We let you watch
your computer being repaired and if
there is nothing wrong with it, we will
tell you!!

FOR REPUTATION & HELPFULNESS -
"I have come across a firm that will be
more than willing to advise you as to
how to remedy your problems. They
are called MANCOMP and as well as
repairing faulty computers, are also
quite willing to discuss your problems
with you and offer reasonably cheap
and more importantly CORRECT
CURES!" Phil Rogers POPULAR
COMPUTING WEEKLY JAN 85.

FOR SPEED - "One firm at least can
effect any necessary repairs over the
counter in 45 minutes. Based in
Manchester, MANCOMP can offer
what is arguably the FASTEST
turnaround in the business to personal
callers" CRASH Magazine JUNE 1985.

THIS IS WHY Spectrum users from
London, Cornwall, Scotland,
Birmingham, Liverpool, Coventry,
Leicester, Glasgow, L.O.M., etc.,
AUSTRALIA, AUSTRIA, BELGIUM,
EGYPT, GERMANY, HOLLAND,
KOWAT, NORWAY, PANAMA, PAPUA

NEW GUINEA, SAUDI ARABIA,
SWEDEN, SWITZERLAND and
ZIMBABWE - send their Spectrums to
MANCOMP for repair!
24 HR. TURNAROUND NO-QUEBBLE
GUARANTEE. NO HIDDEN COSTS.

Because we repair hundreds of
computers every week, we are
able to pass on our 'component-
buying discount' to YOU in
lower prices... Z80A cpu
£1.50, 4116 50p, Upgrade
fitted £18.95
- we bring down the prices for
repairs and components!
(We may refuse to revive
computers suffering from
attempted D.I.Y. repairs!)

Every parcel sent by
Royal Mail Registered Post and insured
for return journey!
(For next day delivery include £1.50
extra).

(Concurrence by prior arrangement).
On site maintenance for Apples,
IBM's and most makes of printers
also available.
Guaranteed 48hr response!
WHY DELAY - OUR ESTIMATES ARE
FREE AND WITHOUT OBLIGATION. IF

YOU DO NOT LIKE OUR ESTIMATE
WE WILL RETURN THE COMPUTER
AND REFUND THE POSTAGE INCURRED

MANCOMP LTD
(Dept PCW 50)
Printworks Lane, Levenshulme,
Manchester M19 3JP
Phone 061-224 1888.
OR 061-224 9888.
OPEN MON - SAT 9am to 7pm



What we do today ...
Others do tomorrow!

FAST COMPUTER REPAIR CENTRE - IN LONDON

*BBC Micro, Commodore, Spectrum
*Amstrad, Others
*We sell spare parts
*Used Micros bought and sold
*Eprom Programming Service
Phone: 01-863 7166

PROMPT ELECTRONICS
Unit 4, 15 Springfield Road,
Harrow, Middx HA1 10F
(entrance in Amersham Road) (70)

SINCLAIR REPAIRS

571 TRUMPLUS £12.00
KEYBOARD £8.50
INTERFACE (MICRODRIVE) £17.00 each

All prices are fully inclusive of p&p and VAT
Send Cheque with computer only unless
p/western supply suspected. Callers Welcome.

I. T. WESTERN ELECTRONICS
Unit F2A & F3
Avenue Enterprise Park
Newbroughton Road,
Mekins, Wilt
Tel: (0225) 705017 27PL5

AB COMPUTERS & ELECTRONICS

* Low Cost Repairs
* COMPUTERS: Atari, Commodore,
Amstrad, BBC, QL, Spectrum, IBM &
IBM compatibles.
* PRINTERS: Juki, Epson, Canon, Citizen.
* Call Us On 01-568 7149
173 Thornbury Road, Osterley,
Isleworth, Middlesex TW7 4QG
Telex: 946240 CWEASY G
Ref: 19008215 (85)

FAULTY SPECTRUM?

As you are probably aware from press reports Sinclair Computers no longer have a repair department. Our computer repair workshop has been an OFFICIAL Sinclair Repair Depot for the past six years and we are pleased to announce that we will continue to do your out of guarantee repairs as in the past.

Send your faulty computer DIRECT

| | |
|----------------------|------------------|
| SPECTRUM | £18.75 inc parts |
| ZX81 | £11.50 inc parts |
| 16K RAM | £9.95 inc parts |
| MICRODRIVE | £15.95 inc parts |
| INTERFACE 1-11 | £18.75 inc parts |

CALL OR SEND WITH CHEQUE OR P.O.

T.V. SERVICES OF CAMBRIDGE LTD
FRENCH'S ROAD, CAMBRIDGE CB4 3NP
Tel: 0223 311371

28TV

SERIOUS 1 MICRO COMPUTER
512K twin floppy drive, VDU keyboard, Silicon office WP software, Ricoh 1300 printer - reference manuals, blank discs and in good working order. £995. Tel: 0525 372156.

SORD COMPUTERS and software bargain. S.A.E. for lists or phone 0279 417636. Playfair Projects, 133 Hookfields, Harlow, Essex CM18 6QL.

AMSTRAD COLOUR CPC 6128, hardly used plus Laser Basic, Eastwater, Graphics Animator, Locksmith, Games - Sorcery, Dragontorc, Sabre Wulf, Knight Shade, Spin dizzy, Books - Advanced Graphics, Basic and Beginners m/c plus Q-shot II Joystick, £350 o.n.o. Pendman 0803 866344.

ELECTRON PLUS 3 unrequired gift - probably the last Plus 3 available since all stocks completely sold out - £129.95. Tel: 01-778 5350, eve/weekends.

LEARN MORSE ON THE AMSTRAD 464/664/6128 from an absolute beginner to an experienced radio ham, all levels of skill catered for. Tape - £5.50, Disk - £9.90. Send cheques, POs to: Lambden Electronics, PO Box 12, Ickley, West Yorks LS29 7TA.

ATARI 800VL: Disk drive: £100. Software, VGC: £100. Tel: Sunjieve (02774) 58188, evenings.

SINCLAIR QL JS rams Psion 2-0 Software £85. Supercharge compiler £30. 8K pet £100. 34K pet £150. 1BM heavy duty golfball £150. CBM tape units £20. Tel: 0704 62242/79960.

ZX PRINTER paper for sale. £6 per box of 5 rolls. Tel: 01-986 8378.

AMSTRAD CPC 464, colour monitor, printer, speech synth, light pen, over thirty games, excellent condition. Original packing boxes. £350 o.n.o. Tel: 317 9363 after 6pm.

SPECTRUM REPAIRS - XMAS SPECIAL (From 1st November - 31st December)

**DON'T LET HIGH COST REPAIRS
SPOIL YOUR CHILD'S XMAS**
for fixed cost,

fast, reliable SPECTRUM repairs done by experts:
MICRO-SERV are SCOTLAND'S No.1 for COMPUTER repairs

For the following same day Services:

| | |
|--|--------|
| * Spectrum/Spectrum Plus repairs | £18.95 |
| * Membrane repairs (Spect and Spect Plus) | £11.00 |
| * ZX PSU's (sent separately) | £6.00 |
| * Spectrum to Spectrum Plus Upgrades (fitted free) | £29.50 |
| * 16K to 48K Memory Upgrades (fitted free) | £19.95 |

(Prices quoted include Parts, Service, V.A.T. and Post & Packing)

WE CAN ALSO REPAIR:
DISC DRIVES,
PRINTERS, MONITORS,
CASSETTE UNITS,
C16/64/PLUS 4, QL,
1/5 MICRO
DRIVES ETC. (81)

Call, or send Spectrum to:
**MICRO-SERV
(Scotland) LTD**
95 DEERDYDES VIEW,
WESTFIELD INDUSTRIAL AREA,
CUMBERNAULD G68 9HN
Tel: 0236 737110

ACORN APPROVED
SERVICE CENTRE FOR
REPAIRS TO: BBC,
ELECTRON
TRADE, SCHOOLS,
COMPUTER CLUBS,
QUERIES WELCOME

SPECTRUM QUIL USERS (C Series). "The Fix" add 5 new actions; PARSE WAIT ADD, SUB, PERFORM, Illustrator and patch compatible. With example adventure - £4.50. "Mini Fix"; implementing PARSE and wait, otherwise as above - £3.00. Kelfsoft, (PCW28), Queen Street, Stamford, Lincolnshire PE9 1QS.

PET 2001 (4032 upgraded) £120. 8050 D/drive £300. 4022 printer £125. Softbox CP/M 80 + Dbase II £200. Datasette £20 (or £550 the lot). Tel: 0797 224948.

SINCLAIR QL JS rams Psion 2-0 Software £85. Supercharge compiler £30. 8K pet £100. 34K pet £150. 1BM heavy duty golfball £150. CBM tape units £20. Tel: 0704 62242/79960.

DUPLICATION

Be records
COMPUTER PROGRAMS
REAL-TIME or HIGHER-SPEED professional Cassette Duplication and Blanks 1 to 1,000+. Computer printed cassette labels. BBC & PC Disk copying 1 to 500+. Fast Security Delivery Service.
FILTERBOND LTD. - JISS RECORDS DIV.
FREEPOST, 19 Sadlers Way, Hartford SG14 2BR.
0992 500101 17

SIMON STABLE PROMOTIONS
Competitively priced service of DATA DUPLICATION. Comprehensive facilities includes blank or printed cassettes, discs, labels, inlays; also bar-code printing. PRICE LIST FROM
The Knightsbridge Stables
20 West End, Launton, Oxon OX6 0DF.
Tel: 0869 25 2831 (73)

There's a Dealer near you . . .

ESSEX

ESTUARY PERSONAL COMPUTERS

318 CHARTWELL NORTH
VICTORIA CIRCUS SHOPPING CENTRE
SOUTHEND ON SEA
Tel: (0702) 614131

PL464

NOBLES

14-17 EASTERN
ESPLANADE
SOUTHEND-ON-SEA,
ESSEX
Tel: (0702) 63377/8

PL568

LEEDS

MICROPOWER

NORTHWOOD HOUSE
NORTH STREET
LEEDS LS7 2AA
Tel: (0532) 458800

PL583

LONDON

GALLERY SOFTWARE
1st FLOOR
THE ARNDALE CENT,
WANDSWORTH,
LONDON SW18
Tel: 01-870 4941

27PL29

A & R COMPUTER SERVICES

LOOK! UNBEATABLE PRICES

| * SPECTRUM 48K | IMP PRICE | COMMODORE 64 | IMP PRICE | AMSTRAD | IMP PRICE | IMP PRICE |
|----------------|-----------|--------------|-----------|-----------------|-----------|-----------|
| Sigma Master | 7.95 | Playboy | 9.95 | Sigma Master | 9.95 | 9.95 |
| Hi Pal | 9.95 | Smiley Disc | 9.95 | Playboy | 9.95 | 9.95 |
| Alban | 9.95 | Smiley Disc | 9.95 | Smiley Disc | 9.95 | 9.95 |
| Smiley Disc | 7.95 | Amiga | 9.95 | Hi Pal | 9.95 | 9.95 |
| Deep Strike | 9.95 | Tractor | 14.95 | Amiga | 9.95 | 9.95 |
| Crangor | 14.95 | Hi Pal | 9.95 | Amiga | 9.95 | 9.95 |
| City Slicker | 9.95 | Sigma Master | 9.95 | Amiga | 9.95 | 9.95 |
| World Masters | 9.95 | Sly Rammer | 9.95 | COMMODORE 618 | IMP PRICE | IMP PRICE |
| Colin | 7.95 | Amiga's Cup | 9.95 | Smiley Disc | 7.95 | 9.95 |
| Case 18 Hits | 9.95 | World Games | 9.95 | Smiley Disc | 7.95 | 9.95 |
| SeaLine Tour | 7.95 | Can by MIs | 9.95 | Computer MIs II | 9.95 | 9.95 |

Please make cheques/PO's payable to A & R Computer Services.
Send S.A.E. for complete catalogue stating which machines to:
A & R COMPUTER SERVICES, 80 BONFIELDS CRESENT,
LEIGH PARK, HAVANT, HAMPSHIRE PO9 8BZ.

GLASGOW

THE COMPUTER DEPOT
205 BUCHANAN STREET
GLASGOW G1 2JZ
Tel: (041) 332 3944

PL785

MEGABYTE COMPUTER CENTRE

12 ETRICK SQUARE
CUMBERNAULD
G67 1ND

DEALERS IN: AMSTRAD
BONDWELL PC AMSTRAD PCW
AMSTRAD PC 1512 SINCLAIR
AMIGA COMMODORE
ATARI ST ATARI

(105)

OXFORDSHIRE

WITNEY
COMPUTER CENTRE
105 HIGH STREET,
WITNEY,
OXFORDSHIRE
Tel: 0993 78294

(77)

YORKSHIRE

YORK COMPUTER CENTRE
7 STONEGATE ARCADE
YORK
Tel: (0904) 641862

PL816

NOTTINGHAM

MPC SOFTWARE

Software and Hardware
for the Amiga, ST, and QL

72 JULIAN ROAD
WEST BRIDGFORD
NOTTINGHAM NG2 5AN
0602 820106

(119)

LIVERPOOL

MFBITCHI COMPUTING

SPECIALISTS IN AMSTRAD
PCW8256 - PCW8512
SOFTWARE & HARDWARE

MERSEYSIDE INNOVATION CENTRE

131 MOUNT PLEASANT
LIVERPOOL L3 5TF
051-709 0123/708 8775

Software Design Service Available

28PL1

Microbyte

We talk business, not bits & bytes
NO. 1 ON MERSEYSIDE FOR
ATARI AND AMSTRAD
71 SEAVIEW ROAD, WALLASEY,
MERSEYSIDE L45 4QW
(051) 630 6933/638 1420
10 am - 6 pm

MAIL ORDER
SERVICE AVAILABLE

(31D)

COMPSWAP

DRIVE, plus £150 worth of excellent software and expert cartridge, only 5 months old. Boxed. Cost £600, sell £350 o.n.o. Will post. Tel: 0302 868550.

QL vision computer monitor, only 3 months old. £170 o.n.o. Tel: 0952 815564.

QL (JS) plus 8056 printer + paper, four business programs, 'Graphiq', flight simulator, 4 games, joystick, manuals, 7 months guarantee, magazines, all boxed. £110. Serious callers only. Contact Peter 0952 680293.

SPECTRUM 48K, joystick, software, books, computer bench or Commodore 64, joystick, books, smart computer bench, software, tape deck for cash. Simon Miller, 11 Shepherds Mead, Leighton Buzzard, Beds. LU7 8AH. Tel: 0525 375369.

CBM 64, 1541 disk drive MPS803 printer, C2N cassette modem, joystick, Music Maker Office Mate. Lots more software. Will sell items separately. All as new. Reasonable offers. Rob 0844 51841.

ADVENTURE PROBE. Monthly magazine offering lots of help, discount software, reviews, maps and solutions. £1 sample copy from: Adventure Probe, 78 Merton Road, Highfield, Wigan WN3 6AT.

CP/M SOFTCARD for Apple II complete with diskettes and manuals, only £35. Various Apple books, offers. Parallel printer interface for Sinclair QL, unused, £12. Tel: Bristol 0272 741421 evenings/w/eekends.

OPUS disc drive 100K suitable for BBC B £50. Two analogue joysticks £10. Circuit modem and software for Amstrad 6128 £30. Tel: 0206 391223.

AMSTRAD 6128 colour £275 o.n.o. Amstrad PCW 8512 £450 o.n.o. BBC Master with amber monitor and disc drive £625 o.n.o. Write to: M. Hadi, 8 Badminton Road, Saint Agnes, Bristol BS2 9QL.

520 STH plus 1MB memory, 500k disk drive, dust covers, games, blank disks, demos, mags, mat, disk box, five months old. Boxed as new. £460. Ken (after 6pm) 0993 841182.

CBM 64, 1541 disk drive with Dolphin Dos fastloader, C2N cassette player, plus other items, worth £600; games and utilities worth £1000. Sell for £390. Tel: John on 0494 35240.

ACORN ELECTRON for sale, manuals, leads and loads of games. Uses BBC Basic. In excellent condition. Will sell for ONLY £65. May swap for another computer. Tel: 01-455 3185, ask for Kapil.

AMSTRAD 6128 colour £275 o.n.o. Amstrad PCW 8512 £450 o.n.o. BBC Master with amber monitor and disc drive £625 o.n.o. Write to: M. Hadi, 8 Badminton Road, Saint Agnes, Bristol BS2 9QL.

520 STH plus 1MB memory, 500k disk drive, dust covers, games, blank disks, demos, mags, mat, disk box, five months old. Boxed as new. £460. Ken (after 6pm) 0993 841182.

CBM 64, 1541 disk drive with Dolphin Dos fastloader, C2N cassette player, plus other items, worth £600; games and utilities worth £1000. Sell for £390. Tel: John on 0494 35240.

ACORN ELECTRON for sale, manuals, leads and loads of games. Uses BBC Basic. In excellent condition. Will sell for ONLY £65. May swap for another computer. Tel: 01-455 3185, ask for Kapil.

Pick of
the week

John Cook looks through this week's new arrivals

Amiga

Program Metacomco Shell
Type Utility **Micro** Commodore Amiga **Price** £49.95
Supplier Metacomco, 20 Portland Square, Bristol BS2 8RZ.

An improved version of the standard Amiga Command Line Interpreter by the authors of AmigaDOS itself.

Amstrad CPC

Program Defcom **Type** Arcade **Micro** Amstrad CPC **Price** £8.95 **Supplier** Quick-silva, Victory house, Leicestershire Place, London WC2.

Program Palitron **Type** Arcade Adventure **Micro** Amstrad CPC **Price** £8.95 (tape), £14.95 (disc) **Supplier** The Edge, 36-38 Southampton Street, Covent Garden, London WC2E 7HE.

Program Footballer of the Year **Type** Strategy/Arcade **Micro** Amstrad CPC **Price** £9.95 (tape), £14.95 (disc) **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Program Winter Wonderland **Type** Graphic Adventure **Micro** Amstrad CPC **Price** £7.95 **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG7 4QW.

First of the new Medallion label from Incentive - all adventures produced by their excellent GAC package.

Excellent atmospheric stuff, but you'd think that the price might be a bit lower, considering the author hasn't had to spend time writing a complex development system. Oh well...

Program The Legend of the Apache Gold **Type** Graphic Adventure **Micro** Amstrad CPC **Price** £7.95 **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG7 4QW.

Another Medallion adventure written by Peter



Torrance, author of previous Firebird releases *Subsunk* and *Seabase Delta* - which were Quilled. Another defection.

Program Kat Trap **Type** Arcade **Micro** Spectrum **Price** £8.95 (tape), £14.95 (disc) **Supplier** Streetwise, 20 Worpole Road, London SW20.

Atari XL/XE

Program Special Delivery **Type** Arcade **Micro** Atari XL/XE **Price** £1.99 **Supplier** Sparklers, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hants GU14 0NP.

Program River Rescue **Type** Arcade **Micro** Atari XL/XE **Price** £1.99 **Supplier** Sparklers, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hants GU14 0NP.

Program Java Jim **Type** Arcade **Micro** Atari XL/XE **Price** £1.99 **Supplier** Sparklers, Unit B11, Armstrong



A double take

Program *Paradroid/Uridium Double Pack* **Type** Classic Arcade **Micro** Commodore 64 **Price** £8.95 **Supplier** Hewson, 56b Milton Trading Estate, Milton, Abingdon, Oxon OX14 4RX.

What you have here must be the Commodore bargain of the year that should have the punters breaking shop doors down in

then get those pennies ready, because this is one of the few really essential purchases if you are a games-playing 64 owner.

Paradroid, a wonderful combination of arcade and brain skills, has been speeded up by around 50% for this event and *Uridium* (well in line for arcade game of the year) has been substantially redesigned and reworked; almost



order to buy it - a double pack from the keyboard of Andrew Braybrook, *Paradroid* and *Uridium*. Both games are classics in their own rights and if you haven't already got both,

enough to make it a Mk II version.

Oh bliss, oh rapture, oh rapture, oh bliss - and if you'll excuse me, I'm wanted back at the joystick.

Mall, Southwood Summit Centre, Southwood, Farnborough, Hants GU14 0NP.

Program Footballer of the Year **Type** Strategy/Arcade **Micro** Atari XL/XE **Price** £9.95 **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Program Spitfire 40 **Type** Arcade/Simulation **Micro** Atari XL/XE **Price** £9.95 (tape), £12.95 (disc) **Supplier** Mirrorsoft, Maxwell House, 74 Worship Street, London EC2A 2EN.

BBC/Electron

Program Footballer of the Year **Type** Strategy/Arcade **Micro** BBC/Electron **Price** £9.95 **Supplier** Gremlin

Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Program Fleet Street Editor - Admin Xtra **Type** Utility **Micro** BBC B **Price** £14.95 (disc only) **Supplier** Mirrorsoft, 74 Worship Street, London EC2A 2EN.

Some add-on programs that might make your life a little easier if you are an avid Fleet Street user. One converts screen files in other Modes to Mode 4, another is a database to get your files organised.

Program Fleet Street Editor - Walt Disney Graphics Library **Type** Utility **Micro** BBC B **Price** £14.95 (disc only) **Supplier** Mirrorsoft, 74 Worship Street, London EC2A 2EN.

Selection (around 50) of Disney characters for use in your Fleet Street creations. Two problems – each time you use a graphic, it has to have the Disney copyright notice printed out as well, but more importantly, you can only use the graphics on work that is not sold for profit. You may or may not find these conditions limiting, but there's no doubt that the graphics themselves are very appealing.

Program Adventure Creator Type Utility Micro BBC/ Electron **Price** £14.95 (tape) **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG7 4QW.

Version of the highly successful Graphic Adventure Creator – but without the Graphics. Includes extra facility for chaining together adventures to create huge multi-partners. Anyone want to make a start on The Many Coloured Land?

Program The Winter Wonderland Type Graphic Adventure Micro BBC B **Price** £7.95 **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG7 4QW.

Program Revs + Revs 4 Tracks Type Simulation Micro BBC B **Price** £12.95 (tape), £14.95 (disc) **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX.

Possibly the best simulation on any home micro, certainly the best racing game, this Geoff Crammond masterpiece has now been re-released, together with the 4 Tracks package that you used to have to buy separately. It's fabby, fabby, fabby, fabby, fabby – worth every single penny – and I can promise you that if you haven't got this program, you aren't getting the most out of your BBC.

Program Revs + Revs 4 Tracks Type Simulation Micro BBC Master Compact **Price** £19.95 **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX.

C16/Plus 4

Program Footballer of the Year Type Strategy/Arcade Micro C16/Plus 4 **Price** £6.95 **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Program Space 2 Type Arcade Micro C16/Plus 4 **Price** £2.99 **Supplier** Midas Marketing, 35 West Hill, Dartford, Kent DA1 2EL.

A double helping of shoot-em up which, while gaining no awards in the originality stakes is a good each-way bet in the value steeplechase.

Program Harvey Headbanger Type Arcade Micro C16/Plus 4 **Price** £1.99 **Supplier** Firebird, 76 New Oxford Street, London WC1A 1PS.

Cute arcade/strategy played against a friend or the computer itself – surprisingly addictive, rather like the cocktail of a similar name.

Program Prospector Pete Type Arcade Micro C16/Plus 4 **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Entertaining enough arcade action which has you burrowing through the earth in order to grab the goodies.

Commodore 64

Program Sky Runner Type Arcade Micro Commodore 64 **Price** £9.95 (tape), £12.95 (disc) **Supplier** Cascade Games, 1–3 Haywra Crescent, Harrogate, North Yorkshire HG1 5BG.

Cascade, of course, spent years churning out that woeful Cassette 50 thing, but came good about 18 months back with Ace. Now the first of their follow-up titles, Sky Runner, which they obviously hope will do just as well – but will it?

The Popular camp was split on this one. There was the 'yawn – oh good grief, this is the most boring game in the

universe,' team and a smaller, but exceptionally vocal cell screaming, 'wow, this is the most fabby thing since the invention of the digital watch.'

Me – I was simply astounded that it should evoke such extreme emotions.

Professionally programmed enough with reasonable, but far from outstanding graphics, Sky Runner has little to lift it out from the crowd. Maybe I'm missing something?

Program Java Jim Type Arcade Adventure Micro Commodore 64 **Price** £1.99 **Supplier** Sparklers, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hants GU14 0NP.

Program Orc Arrack Type Arcade Micro Commodore 64 **Price** £1.99 **Supplier** Sparklers, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hants GU14 0NP.

Program Slurpy Type Arcade Micro Commodore 64 **Price** £1.99 **Supplier** Sparklers, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hants GU14 0NP.

Program Robot Rascals Type Strategy Micro Commodore 64 **Price** £16.95 **Supplier** Ariolasoft, Long Acre, Covent Garden, London WC2.

Interesting combination of card and computer game by the team that designed M.U.L.E. and Seven Cities of Gold. For 2–4 players, I should think it will appeal if you want to get young children around the monitor, although once you bolt on some optional rules, it's complex enough for anyone.

Program X-29 Fighter Mission Type Arcade Micro Commodore 64 **Price** £2.99 **Supplier** Midas Marketing, 35 West Hill, Dartford, Kent DA1 2EL.

Midas Marketing looks like it's the budget arm of Anirog/Anco team – but although it's a flight simulator/shoot-em up, it's any-



thing but a flying start. Vague instructions, unresponsive controls, unsatisfactory.

Program Footballer of the Year Type Strategy/Arcade Micro Commodore 64 **Price** £9.95 (tape), £14.95 (disc) **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Program Headcoach Type Strategy Micro Commodore 64 **Price** £9.95 **Supplier** Addictive Games, 10 Albert Road, Bournemouth, Dorset BH1 1BZ.

Even though they've fiddled about with the rules, it's the best American Football strategy game on the market at the moment, although great things are hoped for from Nexus early in the New Year.

Program Skate Rock Type Arcade Micro Commodore 64 **Price** £8.95 **Supplier** Bubble Bus, 87 High Street, Tonbridge, Kent TN9 1RX.

Skateboarding action on your 64, sports fans – but before you switch off and reject the thing as seven years too late, you might be interested to know that Atari have recently introduced a coin-op about the same subject, called 720.

Almost topical from that standpoint then, the game has the dodging elements of Paperboy played on a low-res, horizontal scrolling, multi-colour screen, as you skate around, collecting flags scattered around the place. Decent sound effects add some polish, but I'd have been happier recommending this if it had been cheaper.

Spectrum

Program Pro Golf Type Simulation **Micro** Spectrum **Price** £1.99 **Supplier** Atlantis Software, 20 Station Road, London SE25 5AG.

Program Battle of Britain Type Strategy/Arcade **Micro** Spectrum **Price** £9.95 **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.

Never in the field of computer conversions has so little ever taken so long. The Amstrad version has been out for almost a year; now relive those tally-ho days of 1940 on your Spectrum.

As with most of the War-gamers Series, an agreeable mix of strategy and optional arcade action.

Program Tarzan Type Arcade Adventure **Micro** Spectrum **Price** £8.95 **Supplier** Martech, Martech House, Bay

Terrace, Pevensey Bay, East Sussex BN24 6EE.

Program Judge Dredd Type Arcade **Micro** Spectrum **Price** £8.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston Upon Thames, Surrey KY1 4DB.

Program Satan's Servants Type Adventure **Micro** Spectrum **Price** £7.50 **Supplier** K Marshall, PO Box 19, Redcar TS10 2YS.

Program The Legend of the Apache Gold Type Graphic Adventure **Micro** Spectrum **Price** £7.95 **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG7 4QW.

Program Scalextric Type Arcade **Micro** Spectrum **Price** £9.95 **Supplier** Virgin Games, 2-4 Vernon Yard, Portobello Road, London W11 2DX.

A motor racing construction set, plus a kind of Pit Stop II – decent racing games are few and far between on the Spectrum, so this is well worth looking at. Sterling.

Program Winter Wonderland Type Graphic Adventure **Micro** Spectrum **Price** £7.95 **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG7 4QW.

Program SAS Operation Thunderflash Type Arcade Adventure **Micro** Spectrum **Price** £2.99 **Supplier** Sparklers, Unit B11, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hants GU11 0NP.

Program Harvey Headbanger Type Arcade **Micro** Spectrum **Price** £1.99 **Supplier** Firebird, 76 New Oxford Street, London WC1.

Program Kat Trap Type Arcade **Micro** Spectrum **Price**

£8.95 **Supplier** Streetwise, 20 Worpole Road, London SW20.



The second of Domark's releases under the Streetwise guise – and not as good as the first. Well enough programmed by Graham Stafford of Design Design, but somehow fails to inspire.

BLANK DISCS 5 1/4 in.

ALL discs have reinforced hubs, are certified error free and guaranteed for life. **MIMIC FLIP SIDED** discs are manufactured for double sided use on any single sided drive such as the Atari, Commodore, Curnana etc. drives. Tracker discs can be supplied with B side notch if requested.

| | 10 | 25 | 50 | 100 | 10 in plastic library case |
|-------------|-------|--------|--------|--------|----------------------------------|
| DS/DD 96tpi | N/A | £14.95 | £27.95 | £49.95 | N/A |
| UNBRANDED | N/A | £14.95 | £27.95 | £49.95 | N/A |
| TRACKER | £7.95 | £17.95 | £33.95 | £59.95 | £8.95 |
| MIMIC | £9.45 | £22.95 | £43.00 | £78.00 | £10.95 |

ALL above discs come with **WRITE PROTECTS, LABELS** and **SLEEVES**.
LOCKING DISC BOX – holds 100 **£11.95** or just add **£10.00** when purchased with 50 or 100 of the above discs.

ATARI 8-BIT DISC SOFTWARE

DOS 4.0 – The best DOS yet. Works in single, enhanced, and double density, plus many other advantages over the other DOS's. **£4.95**.

SHEER FORTH – Powerful FIG-FORTH language disc, double sided with tutorial on B side. **£6.95**.

FIX 'X'L – Translator with extra 4K of RAM in machine code. **£3.95**.

DOUBLE DENSITY MOD. from **£19.95** to **£29.95** (depending on software).

BLANK 3 1/2 in. DISCS !!!

| | 10 | 25 | 50 | 100 | 10 in plastic case |
|--------|--------|--------|--------|---------|--------------------------|
| 135tpi | | | | | |
| SS/DD | £14.95 | £34.95 | £64.95 | £124.95 | £15.95 |
| DS/DD | £17.95 | £38.95 | £74.95 | £144.95 | £18.95 |

MITSUBISHI
MF.2DD £23.95 BOX (10) – 2 BOXES ONLY £44.95.
LOCKING DISC BOX – holds 90 – **£14.95** or just add **£12.00** when purchased with 50 or 100 of the above discs.

ATARI 16-BIT SOFTWARE

BOTH DISCS HAVE OVER 100K OF PROGRAMS ON THEM
DESK ACCESSORY 1 – Includes a directory printer, a printer spooler and a digital watch. **£7.95**.

DESK ACCESSORY 2 – Includes a variety of ram discs, an analog clock and a calculator which works in hex and dec with direct conversion. **£7.95**. Many other ATARI 8 and 16-BIT programs – just write for more info. Cheques etc, payable to **STORT SOFT** (International orders add 10% and remit in Pounds/Sterling by Bank Draft or Intl. Giro).

Send to:

STORT SOFT (Dept PC1)

18 Crown Close, Sheering, Bishop's Stortford, Herts CM22 7NX (88)

DATA - SKIP

PRESENTS:

VIDEOFACE

DIGITISER

FOR ZX-SPECTRUM



Real! ZX-Spectrum screen-shots!



The Data-Skip "VIDEOFACE" digitiser is a new dimension for the spectrum user. If you possess a video-recorder or camera, you now can create most realistic television pictures on your ZX-Spectrum! The "VIDEOFACE" is better than the competition because!

- It's faster (3 times a sec)
- It's more realistic.
- It animates latest 6 screens!
- It has an adjustable animation speed!
- It saves to tape, microdrive or Beta-disk
- And it's even cheaper!

It produces a high-resolution 256x192x4 bit spectrum screen's and because of it's speed a still frame in NTG needed! You can even digitise a moving frame! And whilst scanning you can adjust the slice.

DATA-SKIP VIDEOFACE DIGITISER

Please send me: Videoface at £ 69.- each, set and P&H is included.

I enclose Cheque or Postal Order for £

Make payable to Data-Skip, Send to: M/102L.

Name _____

Address _____

Signature _____

DATA-SKIP
Lange Willensweg 10
28001 WC Gouda Holland
01820-70581

Towards the computerised Filofax

It doesn't seem very long ago that the major driving force in computer design was miniaturisation. Computers had shrunk from room-sized to table-sized, and micros and pocket calculators were taking the trend even further.

Several manufacturers brought out pocket sized computers; typically, they were the size of large calculators, equipped with a one-line screen, 1K to 4K of memory, and tiny calculator keys.

Today this trend seems to have gone into reverse; pocket computers were never wildly successful, so the typical portable computer is now briefcase-sized rather than pocket-sized, and pocket computers are almost forgotten.

The only survivors are the Psion Organiser, several calculators with limited text facilities, and a few pocket 'notebook' machines. All still have tiny keys and displays.

The trouble with the last generation of pocket machines was that they were marketed as computers, but generally perceived as glorified calculators. Their limitations made them useless for most serious applications.

The Organiser is an exception; it profited from some of its predecessor's mistakes, adding comparatively large memory, Ram cartridges, and a range of peripherals for specialised data gathering.

When all is said and done, though, it's still a long way from the full-featured pocket

computers that were predicted a few years ago. Meanwhile technology has advanced in several areas; maybe it's time for manufacturers to have another think about the way these machines should be built.

To begin with, let's assume that the largest practical size for a pocket computer is about the same as a thick paperback book; about 11 by 18 centimetres, five centimetres thick. What can we put into nearly 1000 cubic centimetres?

"Let's assume that the largest practical size for a pocket computer is about 11 x 18 x 5 centimetres. What can be put into 1000 cubic centimetres?"

The first priority has to be a reasonably sized Qwerty keyboard, with comfortable-feeling keys. My old ZX-81 had such a board, a microswitch array that replaced the original plastic membrane without occupying any more area. The keys were 15 millimetres square, about the same size as the top of an IBM key, but packed closely to form a 40-key array 16 by six centimetres.

This still leaves a little room on our basic book shape, so let's add a space bar, some

more punctuation keys, and a few function keys. Keys that won't be used much can be a little smaller, down to calculator size.

All these keys don't leave a lot of room for a display, so why not take it off the keyboard completely, and put it on to a folding lid instead? This could be a fairly big display; the Epson PX-8 screen is only a little wider, and all pocket TV set screens are smaller. Let's say it's an 80 column screen with ten lines; that should be legible, and sufficient for a wide range of applications.

So far we've developed the external appearance of the machine; essentially, a box with an LCD screen in its lid and a keyboard in the base. What else do we need?

One major consideration is a lot of memory; 64K is the minimum (about 10,000 words), 128K would be better. Software built in as 'firmware' should include a programming language, operating system, a word processor, communications, calculator, a diary, and a notebook-style database.

To support the diary the machine should have an internal clock. A modem would be nice, and a couple of RS-232 sockets are essential; most users will be transferring files to and from other computers fairly frequently. Data storage could be on micro-cassettes or discs, but Eprom cartridge storage (as in the Psion Organiser) is probably safer, and certainly smaller and lighter.

It would also draw less power, an important consideration for a pocket machine, and would be compatible with Rom-based add-on software. The power supply should be rechargeable, with back-up for memory from a separate cell. Other facilities should be available as add-ons, but wouldn't be part of the main machine; possibilities include a pocket printer, bar code readers, and so on.

This machine could easily be built today; all the components are available, and the latest surface mounting technology makes it easy to cram them all into a book-sized housing. It might even be possible to build the entire system (including memory) into a single chip, though this is probably still a year or two away.

The main limiting factor is money. If this machine cost £300-£400 it would be up against the Epson PX-8 and other lap-held machines with bigger keyboards and more facilities. It's hard to believe that it would be a huge success. At around £100 it would be a worthy opponent of Psion and Hewlett-Packard. If the price dropped to £50-£60 it could compete with the ultimate enemy of pocket computers; not IBM, not Epson or Hewlett Packard, but a company that maintains a virtual monopoly of this applications area. At this price it would be a direct challenge to Filofax...

Marcus L Rowland

Hackers



POPULAR Only 80p. Computing WEEKLY

18-31 December 1986

Vol 5 No 51

Popular double issue on sale December 18

Details below

CHRISTMAS FEATURES

Now that's what I call
software . . . personal
favourites from the
micro industry

Readers' Poll awards – the results
from your votes

Review of the year

Popular trivia challenge - test your
micro knowledge in our irreverent
quiz

SPECIAL
supplement

Computer graphics



**POPULAR COMPUTING
WEEKLY**

Christmas double issue
All the regular features
and a whole lot of extras
Order your copy now

AMSTRAD 18-95
ZX SPECTRUM 17-95
COMMODORE 64 18-95

LEGEND OF KAGE



Imagine
...the name
of the game

Imagine Software (1984) Limited
6 Central Street • Manchester M2 5NS •
Tel: 061 834 3939 • Telex: 669977



*Licensed from © Taito Corp., 1986. Programmed for (Amstrad, Spectrum, Commodore) by Imagine Software. Export outside Europe prohibited!

